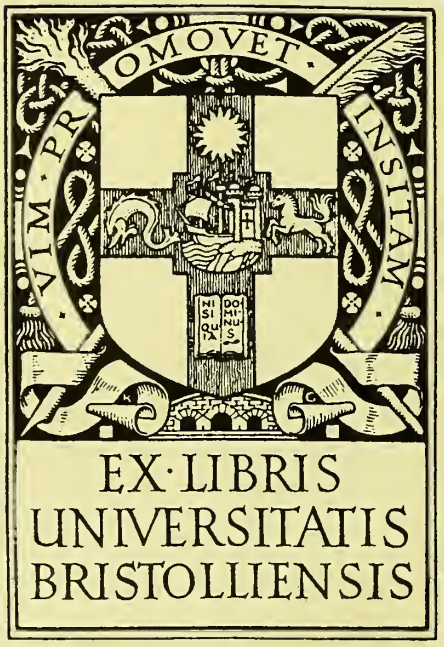
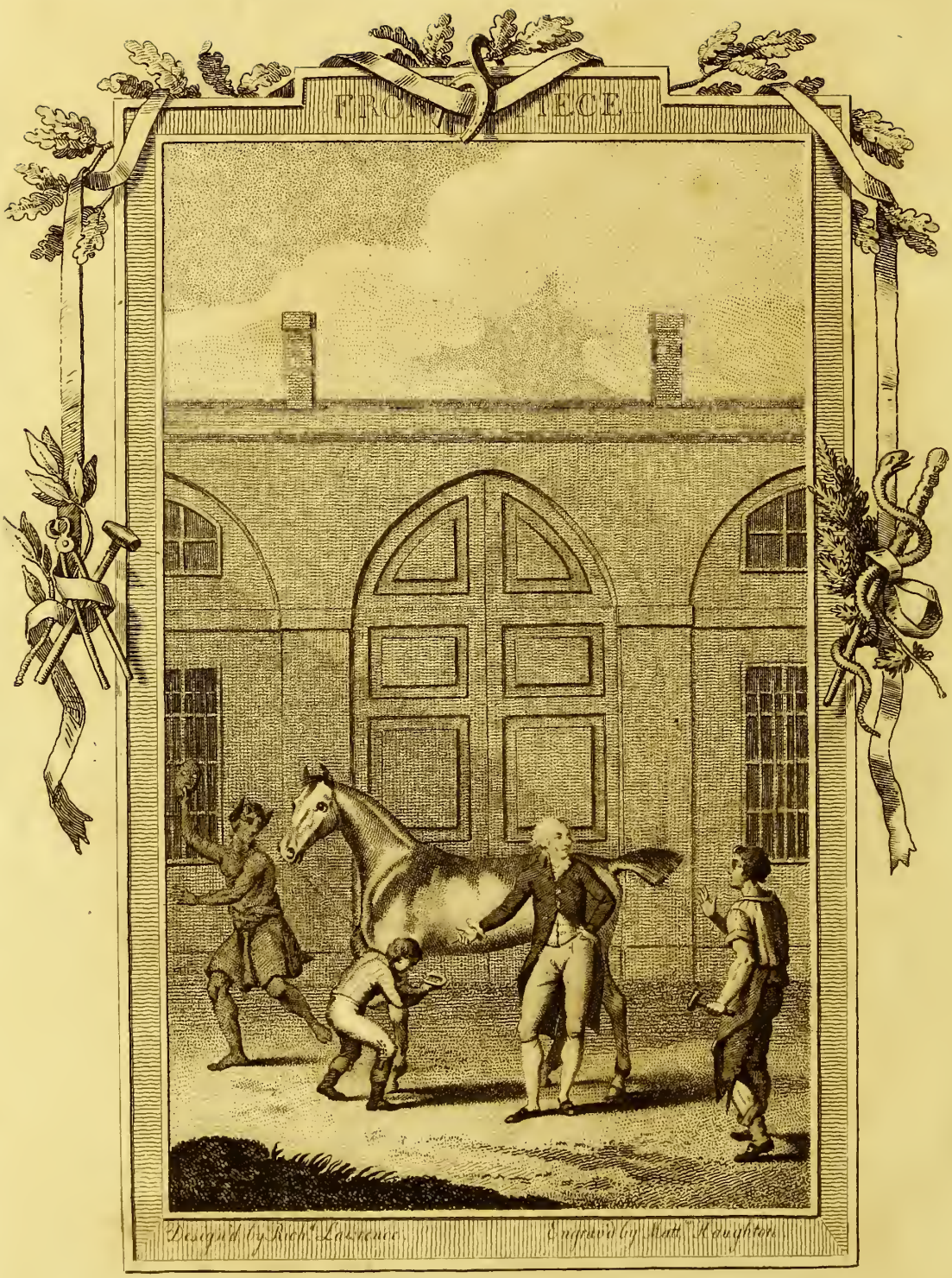




A L'aſpect de La Vérité
La Routine S'etonne, L'ignorance S'enfuit.

London. Printed for Martin & Bain, Fleet Street. May 1.1795.

THE

WORKS

OF

CHARLES VIAL DE SAINBEL,

PROFESSOR OF VETERINARY MEDICINE.

TO WHICH IS PREFIXED

A SHORT ACCOUNT OF HIS LIFE.

INCLUDING ALSO

THE ORIGIN OF THE

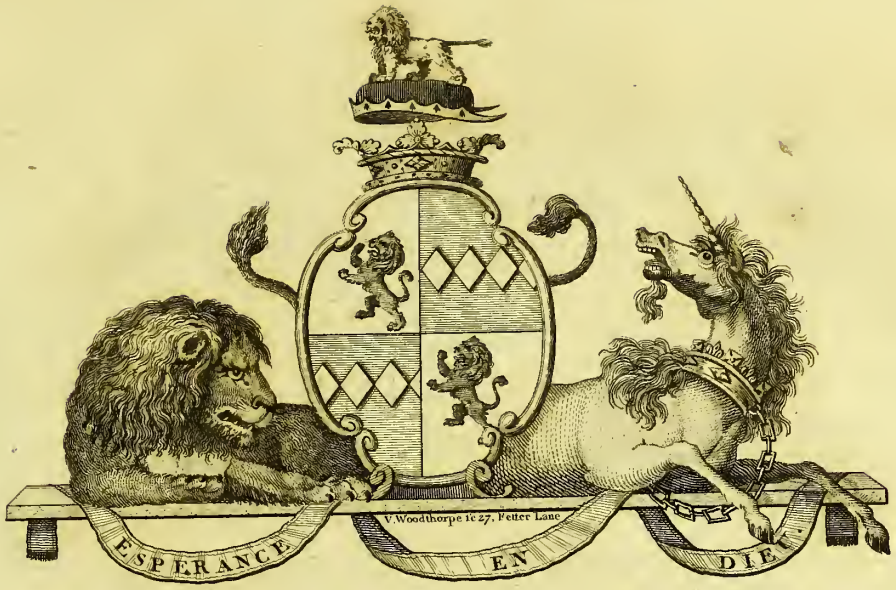
VETERINARY COLLEGE OF LONDON.

London:

Printed for MARTIN and BAIN, No. 184, FLEET-STREET.

Sold also by MESS. B. & J. WHITE, Fleet-street; MR. FAULDER, Bond-street; MR. EGERTON, Whitehall; MR. SEWELL, Cornhill; and MR. RICHARDSON, Royal Exchange.

1795.



TO HIS

GRACE THE DUKE OF NORTHUMBERLAND, *K. G.*

&c. &c. &c.

PRESIDENT

OF THE

VETERINARY COLLEGE OF LONDON.

MY LORD,

THE patronage and munificent support which the Veterinary College of London had the happiness to experience soon after its first

 rise

rise from you, and the very kind manner with which you had the goodness to encourage and countenance the efforts of the late Mons. Vial de Sainbel, during the short period he held the professorship thereof, induces me to offer this volume of his works to your GRACE'S protection.

The respect in which I hold the memory of this very skilful veterinarian, and a persuasion that his works would be as highly useful as gratifying to every one who has experienced the unsuccessful and fatal treatment which but too much prevails in the veterinary practice of this kingdom, were the motives which, in some measure, impelled me to undertake the arduous task of a biographer and compiler.

I have concentrated in this volume not only those publications of Mons. de Sainbel, which have already appeared, but also some of those which he left in a finished state for the press.

Having

Having thus laid before your grace my inducements and plan, permit me to return you my best thanks for the manner in which you received the request I did myself the honour to make to you, for permission to offer this volume to your protection and patronage, and for the manner also with which your grace has consented to *this* request.

The patronage thus benignantly afforded by you, raises in my breast not only the hope of a favourable and successful reception of this work by an enlightened public, but that, after your grace's example, it may be approved of, and protected by, the friends and numerous benefactors of the institution.

I have the honour to be,
With gratitude and respect,
Your Grace's
Most obliged,
Obedient,
And humble servant,
THE EDITOR.

PECKHAM,
December 10, 1794.

CHARLES VAN DE SANDE.

London Printed for Martin & Bain, Fleet Street, May 1.1796.

MEMOIRS

OF THE

LIFE

OF

MONS. VIAL DE SAINBEL.

THE editor having a personal intimacy with Mons. de Sainbel, for some years preceding his death, it furnished him with such opportunities of tracing his real merits as a skilful professor of veterinary science, that he is enabled to give the world the character and exertions of a mind fraught with an ardour;

dour, bordering upon enthusiasm, for its improvement.

He stands the corner stone and original source of that knowledge and practice which is now adopting in London; and diffusing itself throughout this kingdom, respecting the proper method of treating *the horse* in every stage of *its* diseases and infirmities. 'Till his residence in England, *true veterinary science* was unknown among us, although studied and practised in every other part of Europe. To remedy this defect in some measure, the *Odiham Society* (for the encouragement of agriculture, &c.) had it in contemplation to send two young men from this country into France, to study in one of the schools there. The motive appears to have been not only to introduce a judicious mode for the treatment of horses and other cattle into this kingdom, but also to extend this science and its practice. Patriotic and humane as was the plan, yet from so confined an effort little more than a local and partial advantage could

could be hoped for: it is to be feared such a beginning would have had but a small chance of success, from the opposition naturally arising in old and long-rooted prejudices.

Happily, however, for this kingdom, and the beautiful stock of cattle it produces, the mission of these young men into France was prevented by the arrival of Mons. de Sainbel, who just at this period, took up his residence in England. The very judicious manner in which he dissected the body of ECLIPSE, (a horse at once our glory and our pride, from his unequalled and unrivalled powers) and the proofs he daily gave of his knowledge in the veterinary science, soon gained him the patronage of many noblemen * and gentlemen; from the zeal of one of whom, assisted by a few others, and his own exertions, arose THE VETERINARY COLLEGE OF LONDON; an institution of the

* The right honourable Earl Grosvenor and Earl Morton were his most early and distinguished patrons.

the greatest consequence to this nation; and which, (though at present struggling with some untoward difficulties,) will, no doubt, in time equal, if not rival, the other veterinary seminaries of Europe, not only by the excellence of its practice, and the consequent information conveyed to the pupils who are admitted to study there; but by the perpetual source of knowledge it will disseminate throughout the kingdom, producing the greateſt benefit to most of those animals destined to the domestic use of man.

Having thus introduced the author of the following works to the attention of my readers, I shall now proceed to give a narrative of his life, partly from the manuscripts he has left in the hands of his widow; as also from my own observations and knowledge, assisted by the information I have received from those who much esteemed him.

Mons.

Mons. Vial de Sainbel was born at Lyons, January 28th, 1753; at which time his grand father held the important office of mayor; this family having been long possessed of a domaine in that province, called Sainbel, they added this cognomen to that of VIAL (as was the case through-out France before the Revolution of 1789.) At three years old, he lost his grand father and both his parents; his father having appointed Mons. de Flesseille to be his guardian, this gentleman very kindly took him under his care; with him he remained till he was sixteen: at which age, being impelled by his great propensity for investigating the organization of animals, he went one day to the Veterinary School to see its museum: After satisfying his curiosity, he requested an interview with the professor, Mons. Pêan; of this gentleman he solicited permission to attend the lectures as an out-pupil; which, being contrary to the rules of the college, he was refused; but he obtained leave to become a student at his own expence; this in a few days

he accomplished. On his being entered, he was introduced not only to the study of the outward conformation of the horse, but also to that of the cutaneous diseases of the legs: which, being congenial to his wishes, he applied so closely, that in a short space of time he gained the prize alotted to the best essay on the grease, being the subject of discussion for the day. *

His patron, guardian, and friend, Mons. de Flesseille, was so much pleased with this progress of young Sainbel, that he soon after gratified him with an annuity of 500 livres, not only as a reward and encouragement, but also as an earnest of his future favours. By these marks of public approbation and private patronage, he was impelled to greater exertions, and more intense application, so that at the end of two years he obtained the appointment of lecturer and demonstrator to a class of sixteen of the pupils; the next year

* This Essay makes a part of the present Volume.

year he was made upper student, assistant surgeon, and one of the public demonstrators, a situation of great importance, on account of its extensive practice, and the opportunity it afforded of obtaining patrons. He had not been in this charge above twelve months before a dreadful epizootic disorder broke out among the horses, in many of the provinces of France. Upon the frequent and pressing representations made of this destructive calamity to the Veterinary College at Lyons, he was ordered to chuse five students out of it to accompany him in his provincial visits, in order to assist in stopping the ravages of this evil. This mission was so compleatly accomplished, that on his return, he brought with him the most ample official testimonials of his skill, from the places where he had thus fortunately practiced.

Soon after his return to Lyons, he was sent for to Paris by the late king's express orders, and appointed one of the junior professorial assistants to the Royal Veterinary College. Thus rais-

ed, he endeavoured to fulfil the duties of this station by every exertion that a gratified and grateful mind could inspire.

But here (as if fortune was wearied in bestowing her favours upon him) arose an unexpected opposition to his progress, from the jealousy of one of the professors. This man finding that M. Sainbel was gaining, by his skill and assiduity, a great ascendency not only over the minds of the students, but of some of the directors, whose dispositions led them to a right judgment of, and attention to, real merit: and fearing that by his means many of the old and absurd methods of practice still adhered to, would be exploded, and œconomical abuses rectified (by which some of the adherents to the old school might lose not only their consequence, but their situations), he was determined to nip him in the bud. He, therefore, urged M. Chabert and others, in the direction, to enter into a scheme, not only to humble M. Sainbel, but to bring him into that state of submission and silence that would,

would, in future, keep him under their controul and mandates; for this purpose he wrote the following note:

" My dear friend, and brother professor, Chabert,
" I need not again remind you of our present
" irksome situation---this young headstrong, of
" inflexible manners, renders our condition both
" disagreeable and unsafe. What do you think
" of his conduct the day before yesterday, at the
" public lecture? Ought he not to have praised,
" instead of attempted to prove me a plagiarist
" and quack. I own that I previously treated him
" *en cavalier*. What, then? Was I not his se-
" nior, and should he not have taken it in good
" part, and as an honour done him, to be in
" *any manner* noticed? But no---he chose to re-
" tort and insult my abilities. It must be allow-
" ed that he has merit, and has acquired some-
" thing like skill; but his practice is so novel,
" that we must either give up ours, or he must
" his. We professors, have had (you know, my
" dear

" dear Chabert) so *perfect* an understanding with
" each other, throughout the whole college, that
" if one of us *was found* not quite so illumined on
" certain subjects as could be wished, each of us
" winked in our turn at it, and all has been *kept*
" right. Confer with Sainbel as soon as you can:
" get at his private opinion, not only of me but
" of our colleagues; and try to bend him to our
" views. If you find him inflexibly determined
" upon his system of novelty and œconomy,---we
" must crush him.

" You know my interest with the minister. I
" will immediately after your conference (if he re-
" mains obstinate) represent him to be not only a
" wrong-headed, troublesome and dangerous fel-
" low, but also an enemy to all order, and disaf-
" fected to good government, (I do not say what
" government. I leave the minister to *construe*
" that; and as he is most likely to take the word
" in its wrong sense, by his so doing, I get rid
" of all responsibility.) I shall conclude my

" appli-

" application by soliciting his removal from " hence. A letter de cachet will issue, and " the *Bastile* (from whence he shall never return) " be the dernier theatre demonstratif of Mons. " our petit professeur en second. I am, with all " sincerity of attachment and esteem,

" My dear professor,

" Your's,

" BOURGELAT."

The premeditated injustice so apparent in this letter operated with such force on Chabert's confidential pupil, who had contracted an intimacy with, and a sincere esteem for M. Sainbel, that he not only communicated its contents to him, but also furnished him with a copy of it;* and Sainbel, well knowing the vindictive spirit of Bourgelat, Chabert, and their adherents, and that the safest way for him was to give in his resignation;

* As it is from this source the Editor has translated so singular a production, he leaves the candid and discerning Reader to form such a judgment thereon as he thinks fit; he can only say it was found among the late Mr. Sainbel's papers, and that it appeared of too much consequence to be left out in this biographical sketch of his life.

tion; he instantly did so. Having obtained his congé, he quitted Paris, and returned to Lyons, the place of his nativity and of his former happiness: there he practised as a veterinary physician and surgeon for some time; but being disappointed in forming an alliance (by marriage) with a lady for whom he had long entertained an affection, he returned to Paris, at the request of Mons. de St. Priest, then governor of Languedoc, and one of his warm patrons; a short time after his arrival, being informed by this nobleman, that the demonstrator of comparative anatomy to the Veterinary College of Montpelier was dead, and that if he chose to accept of this situation, it was at his service; he readily assented to the offer, and went to that city, where he was appointed anatomical professor; in this office he remained five years (the time for which he engaged himself to it) at the expiration whereof, he revisited Paris, being sent for by the Prince de Lambesc, another of his patrons; with this nobleman he remained three years,

years, during which he was made one of the equerries to the king (Louis XVI.) and chief of the manage of the academy of Lyons : the latter of which he held some years with great gratification to his mind, as he thereby could indulge, at times, his favourite researches in veterinary study, as well as that of horsemanship ; in which latter he also was a very great proficient. It was during this period that he used many efforts to be restored to his former situation in the Royal Veterinary College of Paris, but being disappointed, he was determined, by the advice of Mr. Brousonet, to accomplish the design he had long entertained of visiting England ; for this purpose, he obtained six months leave of absence ; and having received letters of introduction to Sir Joseph Banks, Dr. Simmons, Dr. Layard of Greenwich, and other respectable characters in this kingdom, he arrived here in June 1788 ; in September following he published proposals for instituting a Veerinary School, but without success. Having, during this first visit, married an English lady of great accomplishments, he returned with her to Paris ;

but finding, after some time, that discontents and factious habits of thinking, with respect to national matters, were extending themselves rapidly in that city, and throughout France, he obtained leave to revisit England, under the pretext of purchasing horses for his sovereign's stud: fortunately for him (so far as relates to his existence) but more so for this kingdom, he was in this country at the breaking out of the revolution and the destruction of the Bastile. In this first commotion he lost his guardian and friend, Mons. de Flesseille, who fell the second victim to that unjust, indiscriminate vengeance, of an enraged people. By the death of this great and good man, he lost his annuity of 500 livres. By the restraint exercised over his monarch, and by the death or emigration of his other great friends, he was shortly after deprived of the offices he held; and lastly, his patrimonial estate of Sainbel was confiscated, on account of his being deemed an emigrant, by not returning to France within the time prescribed by the then demagogues who had obtained the executive government thereof.

Thus circumstanced, he was determined to make England the place of his future residence; he took his measures accordingly; and in February following, being requested by Mr. O'Kelly to dissect the body of that wonderful horse, Eclipse, he displayed such great and unusual talents (as a veterinary anatomist) that it soon gained him not only the highest reputation, but many noble and zealous patrons. In the year 1790, he again endeavoured to attract the notice of the public to his views, namely of founding a school to instruct pupils, veterinary medicine, and surgery. His plan was now so well received, that the Odiham Society, for the improvement of agriculture, &c. not only gave up the idea and intention of sending their two young men into France; but they made him an honorary member of their body; from which they delegated a committee of gentlemen to confer with him respecting the aforesaid plan, and whatever might tend to the improvement of farriery, and also of the proper treatment of other cattle in this kingdom. This

committee being joined by some gentlemen in London, they resolved to invite the public to their conferences; having advertised their intentions, and that their meeting would be held the 11th of the next month (February 1791) at the Blenheim coffee-house, in Bond-street, they were that evening attended by a few individuals, who being admitted members of this infant society, the following declaration and resolution was passed.

THAT "this meeting, highly sensible of the "great benefit that must result to this kingdom "from an institution to cultivate and teach "veterinary medicine and surgery therein, and "also of the plan proposed to them by Mons. "Vial de Sainbel (in the views and utility of "which they fully coincide); they, therefore, "RESOLVE that a committee, consisting of four "gentlemen be requested to confer with him, "and to consolidate, if possible, their intentions "with his views."

On

On the 18th of the same month (being the adjourned meeting of the society, after the admission of some very respectable members) GRANVILLE PENN, ESQ. the Chairman informed them that their committee had conferred with M. Sainbel, who had not only explained and proved the utility and practicability of his plan, but that he had also offered to unite his efforts to those of the society; it was in consequence

RESOLVED,

"That this society do forthwith inform the "gentlemen of Odiham, THAT, from the ac- "cess of a great many members, resident in Lon- "don, and for other local and cogent reasons, "they mean to detach themselves from their "body, and form an institution to be called the "VETERINARY COLLEGE OF LONDON. "at the same time requesting their friendly inter- "course and aid. Resolved also, that Mons. Vial "de Sainbel should be requested to accept the "professorship to the said Veterinary College."

The

The number of subscribers daily increasing, a general meeting was called the 8th of April, when the following noblemen and gentlemen were chosen president, vice-presidents, and directors,

PRESIDENT.

HIS GRACE THE DUKE OF NORTHUMBERLAND.

VICE-PRESIDENTS.

EARL GROSVENOR,
EARL MORTON,
EARL OF OXFORD,
LORD RIVERS,
SIR GEORGE BAKER, BART.
SIR J. C. BUNBURY, BART. M. P.
SIR WM. FORDYCE, KNT. AND
JOHN HUNTER, ESQ.

DIRECTORS.

SIR JOHN INGILBY, BART. M. P.
SIR H. P. ST. JOHN MILDMAY, BART.
G. M. ASCOUGH, ESQ.
MR. J. BAYNES,
F. J. BROWNE, ESQ. M. P.
MR. J. BURGESS,
REV. T. BURGESS,
REV. J. COOK,

DR.

DR. ADAIR CRAWFORD,
JOHN GRETTON, ESQ.
DR. HAMILTON,
MR. KENNETT,
DR. D. MAPLETON,
GRANVILLE PENN, ESQ.
MR. WM. STONE,
EDWARD TOPHAM, ESQ.
DR. WILLIAMS, AND
J. WOLLASTON, ESQ.

Messieurs Ransom, Morland, and Hammersly were appointed Treasurers, and M. de Sainbel was confirmed in his nomination of Professor.

The 3d of May following, the constitution, with its rules and orders, was partly settled and published. At this meeting, a letter from the Odiham Society was read, expressing their satisfaction at the success of, and their good wishes for, the Veterinary College of London; and that as a testimony thereof, they had directed their secretary to send up to the said college all such papers as they were possessed of respecting veterinary matters; and further, that they had directed

rected him to request of the subscribers to their veterinary fund, the transfer of their subscriptions to the assistance of this society.

On the 22d March, 1792, it was resolved, that a *temporary* stabling for fifty horses, and a forge house for shoeing, should be built on a piece of ground, near Pancras, which had been previously taken for the use of this institution.

On the 26th April following, it was resolved, at the request of the professor, (to do away any doubt as to his abilities or character, he being a foreigner) That a committee, consisting of Sir George Baker, Dr. Crawford, and Dr. Packwood, together with Mr. John Hunter, Mr. Cline, Mr. Home, Mr. Vaux, Mr. Sheldon, and Mr. Peake, be desired to examine M. de Sainbel, as to his qualifications in veterinary medicine and surgery; and that Earl Morton, Lord Heathfield, and some other noblemen and gentlemen, be requested

quested to examine the documents and other proofs of his mode of conduct while resident in France.

After due investigation, the committees made their respective reports as follows: The medical and surgical committee report, IT is perfectly satisfied that Mr. Sainbel is in every respect qualified for the office of veterinary professor to the college of London; and Earl Morton, from the committee of which he was president, reported, That it is perfectly satisfied with the character and conduct of the professor, Mons. Sainbel.

From this time, until the above gentleman's death, the institution gained ground most rapidly, notwithstanding its being involved in great pecuniary embarrassments, from expensive buildings, and an ill-judged system adopted by some persons in the direction of its funds.

"*Hinc ille lachrymæ!!* * * * * * * * * * * *

* *

Arrived now at that period of biography the most painful to the mind of a friend and an historian, I mean the detail of that melancholy event which so early deprived the institution of its first professor, its great support and firm friend. I shall be as brief as possible, for the sake of my own feelings, as well as of those by whom he was esteemed, in stating, that it was on Sunday the 4th of August 1793, after having finished the morning duty he always performed in person, of visiting, prescribing for, and superintending the dressing of, the wounds of the horses in the infirmary, that he sat down to continue his treatise on the outward conformation of the horse, a work he intended for publication; in a short time he informed Mrs. Sainbel that he felt himself extremely ill, complaining of cold to a degree of shivering, attended with a violent head-ach, and great thirst. She administered to him some wine diluted with warm water. By this, finding himself relieved, he again resumed his studies till the hour of dinner, when the disorder again

attacked

attacked him so violently that it produced a fainting fit, which held him till the evening; he went soon after to bed, and passed a very uneasy, restless night. The next day Dr. Crawford was called to him. Under the care of this gentleman he remained near a week; when, not finding that relief he hoped for, Dr. Scott was requested to assist Dr. Crawford, but with no better success, for, notwithstanding the united efforts of these eminent physicians, the fever and faintings encreased till they ended in a delirium and death on the 21st, being seventeen days after the first attack.

Thus ended the life of this assiduous and skilful veterinarian, who had just entered the 40th year of his age. His body lies interred at the expence of the College (as a tribute to his memory) in the vault of the Savoy Chapel in the Strand.

If I may be permitted to bring my praise-offering to his shrine, I shall say he was a

man of the nicest honour; impatient of every thing that tended to obstruct or suspend the success of the institution over which he presided as professor. Thus zealously attached, he felt much regret on the death or secession of some of its first friends and founders; in consequence of which he struggled (with unremitting exertions) to prevent the effects which unavoidably resulted therefrom; and that these efforts, joined to the anxieties he suffered respecting the fate of his native country France, together with the melancholy situation of his late sovereign and master, weighed so heavy upon his spirits, that he fell a martyr to them.

Had he lived till now, many of the mortifications which he experienced would have ceased, his hopes been encouraged, his wishes gratified, (and in my humble opinion his days prolonged) by the aid he would have received from the exertions of those noblemen and gentlemen who have lately taken upon them to correct former errors

errors by substituting liberal economy in the place of that delusive speculation, which has proved so injurious to the success of the institution.

Soon after his death, at a general meeting of the subscribers to the institution, an annuity of 60l. was generously granted to his widow; this mark of kindness they have been obliged to recall, from the present precarious income of the college. To remedy in some degree this severe blow upon her happiness and subsistence, the Editor has undertaken the task of compiling this memoir; and of publishing this volume, consisting of some of the veterinary productions of her late husband; the profits of which he means to dedicate to her, whose infancy he admired and respected, and whose present situation he very much deplores.

AN

ESSAY

ON THE

PROPORTIONS

OF

ECLIPSE.

BY MR. CHARLES VIAL DE SAINBEL,

Late Equerry to the King, and Head of the Academy at Lyons;
Ancient Professor of the Royal Veterinary School of the same City;
Demonstrator in Comparative Anatomy at Montpellier;

PROFESSOR TO THE VETERINARY COLLEGE OF LONDON.

THE SECOND EDITION.

London:

PRINTED FOR MARTIN AND BAIN, FLEET-STREET.

1795.

TO HIS

ROYAL HIGHNESS

GEORGE, PRINCE OF WALES

THE

FOLLOWING ESSAY

IS,

WITH HIS ROYAL HIGHNESS's GRACIOUS PERMISSION,

MOST HUMBLY DEDICATED,

BY HIS MOST DUTIFUL,

MOST FAITHFUL,

AND MOST OBEDIENT SERVANT,

CHARLES V. SAINBEL.

ADVERTISEMENT.

WHEN I first employed myself in taking the proportions of Eclipse, I had no other object in view, than to gratify my own curiosity with respect to the figure, extent, and direction of the parts which compose a race-horse, and to compare them with those of horses of different kinds, for the purpose of informing myself of the mechanical causes which conspire to augment the velocity of the gallop; of course, the Essay which I here offer contains only some general ideas on the mechanism of the organs of progression. I will, however, venture to affirm, that these ideas are capable of being extended, and may conduce to the knowledge of the mechanical causes of the *translation* * of every animated machine. The

 bones,

* The word *translation* signifies the removal, or conveying of the body forward, by its natural powers; and is borrowed from the original, on account of its simplicity of expression.

bones and muscles exhibit an apparatus of columns, levers, pullies, cords, wedges, &c. whose combined operations effect the removal of the body with greater or less speed. The knowledge of these parts is therefore necessary for forming a judgment of the motions of the horse, of their origin, capacity, extent, succession, &c. This knowledge is not less necessary to those artists who design to represent the animal upon canvass, or in marble. The painter or statuary, who stops at the surface of the parts, can never give a just representation of the truth; he must carry his enquiries beyond the outward case, which conceals the causes of the motions which he wishes to express. Since it is true, that the construction and direction of the bony and muscular parts within determine the outward figure of the body, a table of proportions, collected from the best race-horses, would be of great service. 1st. As a surer guide to the brush or chisel of the artist, who commonly only employs them in opposition to nature. 2d. It would teach a better choice of the

the animal, and to exact from it no greater exertions than Nature had rendered it capable of yielding. 3d. By means of this table we should be enabled to establish the true conformation of the race-horse; and at any given time to discover whether the breed had improved or degenerated. In short, I submit these observations to the Reader; and in the mean time shall employ myself in treating of the elements of Veterinary Medicine, for the use of the pupils of the newly-projected Veterinary College. If I can render myself any way useful to the Public, I shall have obtained the purpose of every good citizen.

AN

ESSAY

ON THE

PROPORTIONS

OF

ECLIPSE.

DEATH OF ECLIPSE.

IN the morning of the 25th of February 1789 Eclipse was seized with a violent cholic. The remedies acknowledged as most proper in that case were administered, but without effect. He expired on the 27th, at seven o'clock in the evening, in the 26th year of his age.

Opening

Opening of the Body.

The opening of the abdomen, or lower belly, presented immediately an overflowing of sanguinous serum; all the intestines were in a state of extreme inflammation, and even covered over with gangrenous spots. The mesentery and the epiploon were in the same condition; the glands appeared much swelled, and the blood-vessels were filled with a black thick blood, apparently without any serum. The stomach was entirely empty; its inward membrane little inflamed; the spleen was much obstructed, as was also the liver, one lobe of which was partly in a state of putrefaction. The dissection of the reins, or kidnies, more particularly discovered the cause of the disease; the pelvis was filled with purulent matter, and the membranes completely destroyed by the effect of suppuration. The bladder did not contain a drop of urine, but only a certain quantity of pus, conveyed by the ureters; its villous coat was corroded by the matter. From the

above

stances I infer, that the reins performed their functions in a very imperfect manner, and that the animal died in consequence of the affections of these viscera, and of a violent inflammation in the bowels. The viscera of the chest partook, in a very slight degree, of this inflammation. It is worthy notice, that the heart weighed fourteen pounds. The skull was not opened, as it was my intention to preserve entire the skeleton of so famous a horse.

Comparative Remarks between the Proportions of ECLIPSE, *and the Table of the Geometrical Proportions of the Horse in the Use of the Pupils of the Veterinary Schools of France.*

THE horses of different countries are in general distinguished from each other by a peculiar, appropriate conformation. The Spanish horse differs materially in his outward appearance from the English race-horse. The difference in the length and direction of the parts of which each is composed produces in each a system, from whose mechanic arrangement result motions very unequal in their extent. The Spanish horse cadences his steps with dignity, while the English horse drives his mass forward with strength and speed. This difference, which proceeds from the peculiar conformation of each, contradicts in some particulars the table of geometrical proportions in the use of the pupils of the Veterinary Schools of France. It proves, that

that no common measure can be made to apply equally to every species, since Nature has even diversified the forms of the individuals which compose it.

If each species has its own style of beauty; if even each individual has its own peculiar beauty; if it is not possible to find two horses that perfectly resemble each other; we cannot pretend to assign any one form preferably to another, as the rule of beauty for the horse. Were persons the best qualified to endeavour to collect together the different beauties dispersed among the different individuals, they might indeed compose a model of each species sufficiently perfect to direct the painter or the statuary, but which would deceive any one who would venture to choose an horse by it for his own use. The following observations do not take for their object those forms which please the eye at the first glance, that appearance which vulgarly passes for hand-

some: but that mechanical construction of the animal, from which result the possibility and extent of those motions by the means of which he is enabled to transport himself from one place to another with greater or less speed. And, consequently, an horse may appear ugly to a vulgar eye, and be still well proportioned. Eclipse was never esteemed handsome; yet he was swift, and the mechanism of his frame almost perfect. Whoever compares his proportions with those in the table abovementioned will discover the following differences.

1st. In that table the horse should measure three heads in height, counting from the foretop to the ground. Eclipse measured upwards of three heads and an half.

2dly. The neck should measure but one head in length; that of Eclipse measured an head and an half.

3dly.

3dly. The height of the body should be equal to its length; the height of Eclipse exceeded his length by about one tenth*.

4thly. A perpendicular line falling from the stifle should touch the toe; this line in Eclipse touched the ground at the distance of half an head before the toe.

5thly. The distance from the elbow to the bend of the knee, should be the same as from the bend of the knee to the ground; these two distances were unequal in Eclipse, the former being two parts of an head longer than the latter.

This summary comparison shews, that the beauty of the horse cannot be absolutely determined by general rules, but must ever be in relation to the particular species.

Although

* It must be observed, that the body of Eclipse is represented too short by two inches in the profile of the first plate, which fault is owing to the Engraver.

Although M. BOURGELAT has not given to his system all the extent which it was capable of receiving, we must nevertheless acknowledge, that the consequences which he deduces from it may, under certain modifications, serve to explain the mechanism of the different species of horses.

It is certain, that the different degrees of speed which we observe in the paces of horses of different kinds, result principally from the mechanic combination of the pieces which compose the organs of progression; and it is only in examining their proportions when just, in ascertaining their exactness, their perpendicular, their absolute and relative directions, that we can conceive any hopes of apprehending the intentions and purposes of Nature.

Essay on the Geometrical Proportions of Eclipse.

ALTHOUGH it may be impossible for us to compute the natural strength of the muscles, we may nevertheless investigate the mechanical causes which operate the translation or removal of animal bodies, observe their effects, and come to some result concerning the difference of speed in the progression of different animals.

This requires, first, a knowledge of the anatomy and mechanism of the animal œconomy; secondly, a knowledge of the laws of motion; by means of which we are enabled to calculate the causes and effects of the operations of which the animal is capable.

Since it is evident, that Nature has calculated and combined all her productions, and has subjected herself in general to the established laws of mechanics;

mechanics; it is obvious, that we ought to apply the lights which proceed from the knowledge of these laws to the examination and illustration of her works. It is only in disputing, as it were, with her, in seeming to question her power, in boldly attempting to remove the veil under which she conceals herself, that we in a manner constrain her to explain herself upon an infinite variety of important points, on which ignorance alone has hitherto ventured to pronounce.

It is not an habit imperceptibly acquired, nor a vague routine, nor a practice unestablished on sure principles, that can ever give us satisfactory solutions of an infinity of problems, which Nature presents daily to our attention; it is by the constancy of study and reflection only, that we can be enabled to establish new principles upon subjects which the light of science has never yet illumined.

It is sufficient to offer a new system, to acquire both followers and opponents. The reflections

which I am going to hazard concerning the geometrical proportions of Eclipse, will, in all probability, offend some of the prejudices received among the partizans of the turf; but if it should be in my power to offer them any truths, I have at least a claim upon their indulgence.

No one is ignorant that the course of progression is not the same in all animals. The difference is certainly very considerable between the slow and tedious pace of the animal which we call the sloth, and the velocity of the hare. But, without recurring for an instance to the two extremes of the long chain of quadrupeds, I shall confine myself to one in the species which at present concerns us. Speed is not only unequal in animals of different species, but even in individuals of the same. How different, for example, is the gallop of a large dray-horse from that of a good race-horse? It is with difficulty that the former moves his body to determine it into the pace required; he gathers the ground heavily under him at each step, and

the translation of his bulk is but tardily effected. The latter, on the contrary, flies as an arrow from a bow, and scarcely imprints the ground with his shoe; he often runs over a space of four miles in less than eight minutes. These are, however, but individuals of one and the same class. The number of the parts which conspire to effect their respective progression is the same in each: but these parts differ in their bulk, their extent, and their direction; from whence result different degrees of power in the levers which they form. So that we are not to imagine that the mass or weight of the horse is the only cause of his slowness, which rather proceeds from the mechanical arrangement of the parts, whose relation and correspondence determine the extent of his motions.

The extent of the action of any part is the produce of its length and direction. The force of the action is rather the consequence of the direction of the muscles, than of their intrinsic power;

power, which must unavoidably vary, being increased or diminished, in proportion as the muscles are more or less removed from the centre or axis of the parts which they are to move. It will be necessary to illustrate this principle. Let us then suppose the shoulder-blade of an horse to be long, and in a very oblique direction, so as to form with the humerus an angle of eighty degrees*; then, the muscles which move the shoulder forward, backward, upward, and downward, being remote from the centre or axis of the motion, will produce the flexion and extension of this part more advantageously than if they were brought nearer that centre; so that if the shoulder inclines backward with forty degrees of obliquity, it must advance forty degrees to find the perpendicular. If, on the contrary, this part, when in a state of inaction, approaches nearer the perpendicular, and is in itself naturally shorter, the portion of the circle it describes will be less, whatever may be the intrinsic power of the mus-

* See plate iii. fig. 3 & 4.

cles. The good or bad construction of the shoulder influences materially on progression, since it is the origin of the limb, and consequently its motion determines that of the inferior parts. It is therefore with good reason that a long and oblique shoulder is required in an horse for speed; since the longer and more oblique that part is, the further the arms of the lever will be extended, the more open will be the angles, and the greater the portion of the circle which it will describe.

To convey an idea of the consequences I am going to draw from the dimensions of Eclipse, I shall endeavour to apply some mechanical principles to the action of the hock, as being that part whose function is of the greatest importance in the progression of the horse. All horsemen agree in the choice that is to be made in this part; they prefer that one which is wide and flat, because it appears to denote strength; the dissection of the part confirms this opinion.

The

The structure of the hock presents an angular spring, formed by the tibia and the calcaneum*, whose power is increased or diminished in proportion to its shortness. At the union of the two branches of this spring is the origin of the fulcrum, which rests upon the ground. The power which extends these branches is the contraction of the flexor muscles; the weight of the body is a second power which compresses the spring; the resistance exists in effect in the extensor muscles, which yield at the moment of flexion, but in their turn re-possess themselves of the power, by which they produce in the spring of the hock an extension equal to the compression it had sustained: for, by the nature of the spring, its extension must be always in the same direction with the compressing power, and with a force equal to the degree of compression. This may be easily perceived in an horse galloping at full speed. In a race-horse, for example, we see the hind legs placed obliquely forward under the body, and even

* See plate iii. fig. 1 & 2.

even beyond the centre of gravity; in this direction, finding themselves charged with the whole burthen, they make a sudden effort to disengage themselves from the weight which oppresses them; and from the repetition of these alternate flexions and extensions proceeds the celerity of the gallop. In horses, on the contrary, whose hind feet do not sufficiently approach the centre of gravity, and whose spring is perpendicularly compressed, we see that the extension still takes place, in the same direction, and in the same proportion. This is distinctly evident in the short gallop of the manage-horse. In a word, the force of action in the hock will increase in proportion with the prolongation of the hinder branch of the spring, formed by the calcaneum; and we must thence infer, that the wider the hock is, the better it will serve progression; provided that the remainder of the limb is in just, relative proportion.

This slight idea of the mechanism of the shoulder and the hock will discover the principles

upon which I endeavour to establish the advantage of a due proportion of the parts. It will be readily perceived, that these principles must have for their object the length, breadth, and direction of the solid parts which compose the skeleton of the machine; whose symmetry and harmonious arrangement, favouring the power of the muscles, is the cause of the freedom and extent of the motions.

Though it is not possible to lay bare to our inspection the bony and muscular parts of the living animal, yet the eye, instructed by anatomical knowledge, is able to discern them, and to measure and compare them with sufficient exactness to be able to deduce some consequences concerning the power and the extent of their action. By this method I took the proportions of Eclipse when living, and have since his death satisfied my curiosity upon his skeleton, having dissected him myself.

It is necessary, before I produce the table of the proportions of this famous horse, to apprise the Reader, that I have no intention of establishing the beauty of race-horses by the rule and compass. He must, therefore, banish from his thoughts all idea of a beauty of caprice or convention, and endeavour to conceive a beauty founded on the natural and mechanical excellence of the animal, and relative to the uses for which he is designed; namely, in the instance before us, for speed.

The repeated races which Eclipse won, without ever having been beat, prove evidently the superiority of his speed over that of the horses which run against him. It is on this account that I have made choice of him, for a rule to guide me in the reflections which I propose to offer in the course of this essay.

Table

Table of the Geometrical Proportions of Eclipse.

THE head divided into 22 equal parts is the common measure for every part of the body. If the head appears too long or too short in a horse, that common measure must be abandoned, and the height of the body taken from the top of the withers to the ground. This height being divided into three equal parts, one of these three parts sub-divided into 22 equal parts will give a just geometrical length, such as the head would have given had it been rightly proportioned.

AAAC. 3 heads and 13 parts give the height of Eclipse, when properly placed, from the foretop to the ground.

AAA. 3 heads, from the withers to the ground.

AAA. 3 heads, from the rump to the ground.

AAA. 3 heads and 3 parts, the whole length of the body, from the most prominent part of the chest to the extremity of the buttocks.

AAA. 2 heads and 20 parts, the height of the middle of the body, through the line of the centre of gravity.

AAC. 2 heads and 7 parts, the height of the highest part of the chest from the ground.

AAC. 2 heads and 5 parts, the height of the perpendicular line, which falls from the articulation of the arm with the shoulder, directly to the hoof.

AB. 1 head and 20 parts, the height of the perpendicular line, which falls from the top of the fore leg, dividing equally all its parts to the fetlock.

AB. 1 head and 19 parts, the height of the perpendicular line from the elbow to the ground.

AB. 1 head and 19 parts, the distance from the top of the withers to the stifle. The same measure also gives the distance from the top of the rump to the elbow.

A. $1\frac{1}{2}$ head, the length of the neck from the withers to the top of the head. The same measure also gives the length of the neck, from the top of the head to its insertion into the chest

A. 1 head, the width of the neck at its union with the chest.

D. 12 parts of a head, the width of the neck in its narrowest part.

D. The same measure gives the breadth of the head, taken below the eyes.

A. 1 head and 4 parts, the thickness of the body from the middle of the back to the middle of the belly.

A. The same measure gives the breadth of the body.

A. The same measure gives the length of the rump, from its summit to the extremity of the buttocks.

A. The same measure gives the distance from the root of the tail to the articulation of the femur with the tibia, commonly called the stifle.

A. The same measure gives the length from the stifle to the hock.

A. The same measure gives the height, from the hock to the extremity of the hoof.

B. 20 parts of a head, the distance from the extremity of the buttocks to the articulation of the stifle.

B. The same measure gives the breadth of the rump or croup.

E. 10 parts of a head, the breadth of the fore legs from their anterior part to the elbow.

F. 10 parts of a head, the breadth of one of the hind legs, taken beneath the fold of the buttocks.

F. 8 parts of a head, the breadth of the ham taken from the bend.

F. The same measure gives the breadth of the head above the nostrils.

G. 7 parts of a head, the distance of the eyes, from one great angle to the other.

G. The same measure gives the distance between the fore legs.

H. 5 parts of a head, the thickness of the knees.

H. The

H. The same measure gives the breadth of the fore legs, above the knees.

H. The same measure gives the thickness of the hams.

I. 4 parts of a head, the breadth of the pastern or fetlock joint.

I. The same measure gives the thickness of the coronet.

K. $4\frac{1}{2}$ parts of a head, the breadth of the coronet.

L. 3 parts of a head, the thickness of the fore legs in their narrowest part.

L. The same measure gives the breadth of the hinder legs, or shanks.

M. $2\frac{3}{4}$ parts of a head, the thickness of the hind pasterns.

M. The same measure gives the breadth of the shanks of the fore legs.

N. $2\frac{1}{4}$ parts of a head, the thickness of the fore pasterns.

N. The same measure gives the breadth of the hind pasterns.

O. $1\frac{3}{4}$ parts of a head, the thickness of the fore and hind shanks.

Perpendicular Lines in Eclipse's Fore Legs.

AAC. The first perpendicular line has been already described; it falls from the articulation of the arm with the shoulder, precisely to the edge of the toe. This line ought not to deviate from this direction.

AC. The second perpendicular line falls from the middle of the breast directly to the middle

point of the space which separates the two fore feet.

A. The third perpendicular line falls from the middle of the knee, and divides in equal parts all the pieces which compose the rest of the extremity, to the ground.

AB. The fourth perpendicular line falls from the top of the side of the fore legs, and divides equally all the parts to the pastern.

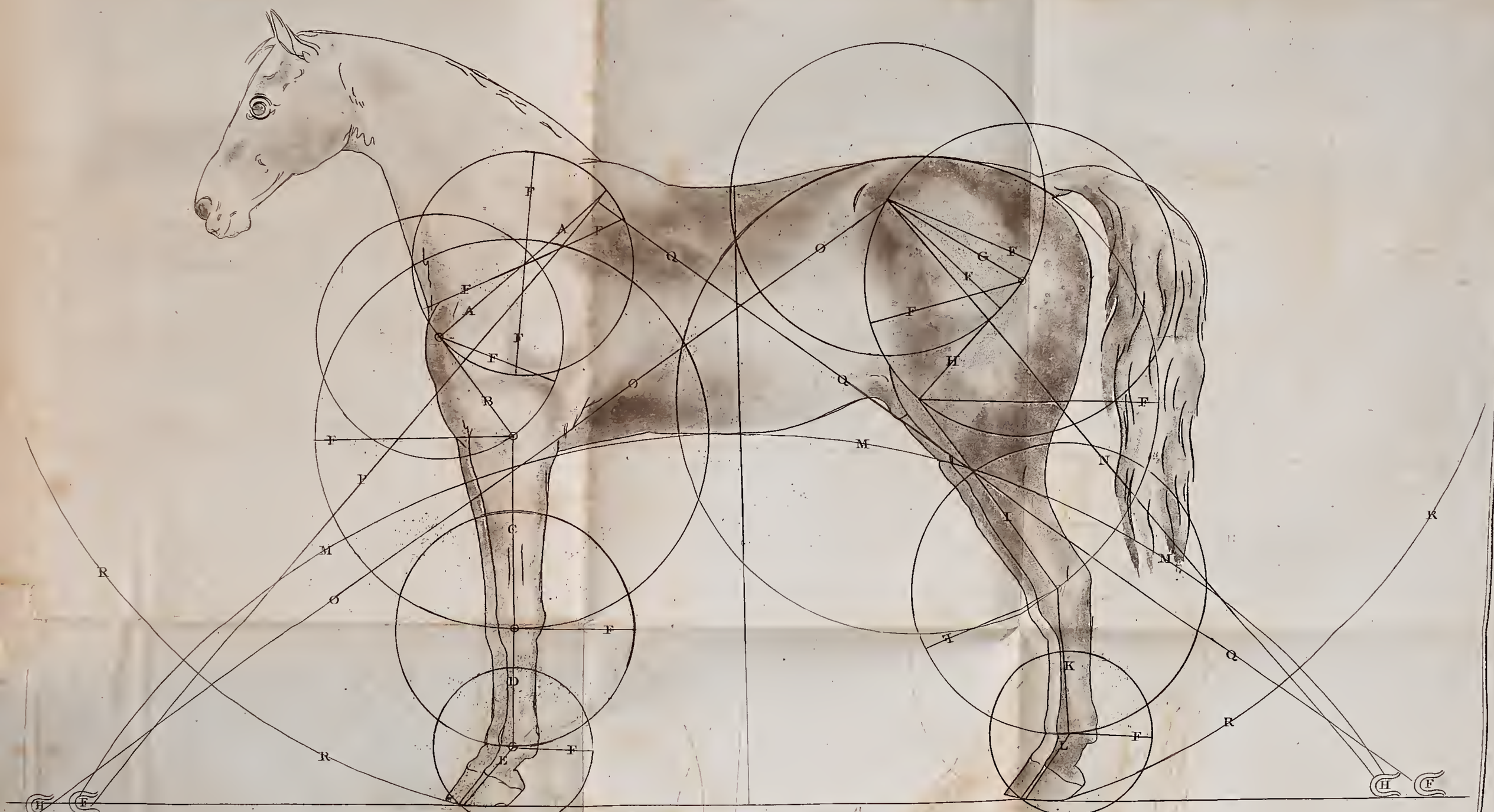
Perpendicular Lines in his Hind Legs.

AA. The first line falls perpendicularly from the articulation of the stifle to the ground, and should touch the ground at the distance of half a head from the toe.

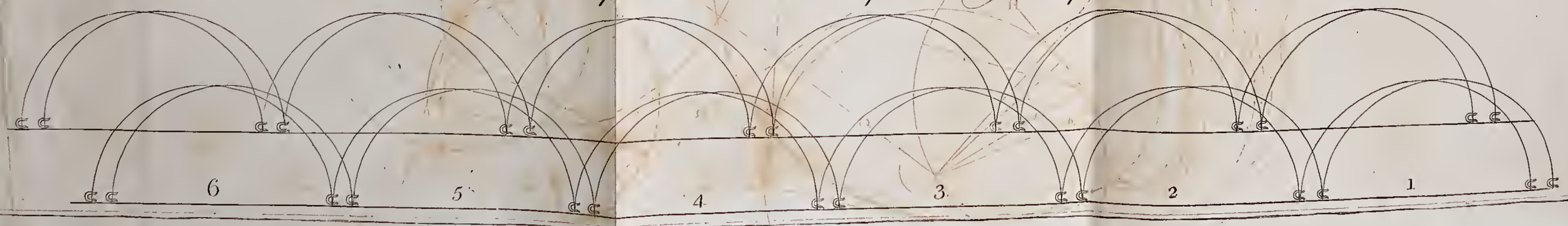
A. The second falls from above the bend of the ham, exactly to the hoof.

A. The

Anatomical Geometrical & Mechanical Drawing representing the Motions of the Legs of the late Famous Eclipse.



Six Compleat Actions of the Gallop.



London, Printed for Martin & Bain, Fleet Street, May 1795.

A. The third falls from the point of the hock, and divides in equal parts all the rest of the leg, to the ground.

A. The fourth falls from the middle of the buttocks, exactly to the middle point of the space, which separates the hind feet.

All these perpendicular lines, which existed really in Eclipse, as may be seen in his skeleton, constituted the most beautiful and important quality of his structure. These same lines may serve as rules in the choice of the best race-horses.

Explanation of the second Plate, which represents the Motions of the Legs of Eclipse.

HEIGHT AND LENGTH OF ECLIPSE.

	Inches.
The height from the withers to the ground	66

Inches.

The height from the top of the rump to the ground - - - - 67

Length of the body, taken from the most prominent part of the breast to the extremity of the buttocks - - - 69

Length of the Bones which compose the Legs.

FORE LEGS.	In.	HIND LEGS.	In.
A. The shoulder blade - -	18	G. The os-ileon - - -	12
B. The humerus or arm - -	12	H. The femur - - -	15
C. The cubitus or fore arm -	16	I. The tibia - - - -	19
D. The canon or shank - -	12	K. The shank or leg - -	14
E. The pastern, the coronet, and foot - - - - -	7	L. The pastern, the coronet, and foot - - - - -	9

Extent of Flexion in the Parts which compose the Extremities.

F. All the lines which proceed horizontally and obliquely from the centre to the circumfer-

ence

ence of each circle, and on which is the letter F, mark the extent of flexion, either forward or backward.

The Fore Legs.

A. The shoulder describes a portion of a circle, equal to 40 degrees, both forward and backward; the centre of its motion being in the middle of the shoulder blade.

B. The humerus, or arm, is represented in the the centre of flexion backward; it describes 40 degrees in its action.

C. The cubitus, or fore arm, is represented at the beginning of its flexion forward, and describes 90 degrees in its action.

D. The shank, or canon, is at the beginning of its flexion backward, and describes 90 degrees in its action.

E. The pastern, coronet, and foot, describe, one with another, in their flexion backward, 100 degrees.

RECAPITULATION.

	Degrees.
A	40
B	40
C	90
D	90
E	100
Total of the flexion	360

Hind Legs.

G. The haunch, or os ileon, bends upward and downward, and describes 30 degrees in its action.

H. The

H. The femur, or thigh bone, is represented in the middle of its flexion forward, and describes 50 degrees.

I. The tibia is represented in one third of its flexion backward, and describes in the whole 80 degrees.

K. The shank is represented in the beginning of its flexion forward, and describes 100 degrees.*

L. The pastern, coronet, and foot, describe, one with another, 100 degrees.

RECAPITULATION.

	Degrees.
G	30
H	50
I	80
K	100
L	100
Total of the flexion	360

* The line of flexion of this part is not placed sufficiently high in the plate.

We may see by this, that the legs of Eclipse, in their flexion in the gallop, described each a circle of 360 degrees; and, consequently, the extent of the action of each leg was the same in the extension.

To this must be added the force of action, without which an horse cannot even walk. This force depends chiefly on the power of the muscles, and can only be computed by experiment; since they are animated organs, which move parts merely mechanical: but, in allowing Eclipse a good muscular organization, which he certainly possessed, we may, examining the length and direction of his legs, and the greatness and openness of the angles, formed by the alternate disposition of the bones which composed his extremities, pronounce with the greatest probability, that Eclipse, free of all weight, and galloping at liberty in his greatest speed, could cover an extent of 25 feet at each complete action on the gallop; that he could repeat this action twice and one third in each

each second; consequently, that, employing without reserve all his natural and mechanical faculties on a straight line, he could run nearly four miles in the space of six minutes and two seconds.

HF. These two letters placed in the four prints of the feet, which are marked before and behind the horse's legs, shew where he placed his hind and fore feet in the gallop.

Lines of Progression.

M. The great segment of a circle, which proceeds from the print of one of the hind feet, and enters the print of one of the fore feet, shews the total extent of ground which the horse covered at each complete action in the gallop.

N. The oblique line, which proceeds from the protuberance of the hip bone, and meets the print of

of the first hind foot, shews the total extent, and the force of action, of the hind legs.

O. The second oblique line, which proceeds in the same manner from the point of the hip, and meets one of the prints of the fore feet, shews the position of the hind foot when it presses the ground in the act of galloping.

P. The third oblique line, which proceeds from the summit of the shoulder, and meets one of the prints of the fore feet, shews the extent and force of action in the fore legs.

Q. The fourth oblique line, which proceeds from the shoulder, and meets the last print of the hind feet, shews the spot from whence the fore foot rises in the progression, until its action is finished.

R. The two curve lines which proceed, the one from the hoof of the fore foot, and the other from

from the hoof of the hind foot, mark simply the compass of the extension of the four legs.

THE speed of Eclipse being a fact established, and well ascertained, the excellence of his construction should naturally be admitted. The velocity of his gallop could only result from the harmonious combination in the organs of progression. Let us now suppose these same organs faulty by any defect in their proportions, and let us now inquire what would be the consequence. We will begin with the head.

Defect in the Proportion of the Head.

The body, neck, and head of a horse, may be considered as forming a large lever, whose fulcrum is in the fore legs. The head, being joined to the extremity of the anterior arm of this lever, formed by the neck, must necessarily counterpoise some

part of the posterior arm, formed by the body. If the head is too short, the evil will not indeed be very great, but the counterpoise will be unequal; the hinder part will be obliged to exert more strength to determine the weight of the body forwards; the fore-hand will be lighter, but it will be at the expence of the progression. The fault will be more considerable if the head be too long and heavy, because it will in that case overweigh that portion of the hind quarter, unto which it should only equiponderate: the fore legs being overcharged, will detach themselves from the ground with the less facility, will continue raised in their elevation a shorter time, and will cover less ground in their advance.

Defect in the Proportion of the Neck.

The faults of the neck are in general the consequences of the defects of the head; for it is an uncommon thing to see a short head with a long neck,

neck, as, on the contrary, to see a long head with a short neck.

If the neck is too short, the fault will be an addition to that of a too short head. The case will be the same if the neck is too long; for the head will naturally weigh heavier, in proportion as it is removed from the fulcrum or rest of the lever, supposing it to be well proportioned. Its length, as has been shewn in the table, should be nearly one third of the height of the body, measuring from the withers to the ground. The neck will be well proportioned if it measures one head and a half from the nape to the withers.

Defect of Proportion in the Height of the Body, from the Withers to the Ground.

The fore-hand of a horse only appears low in relation to his hind quarter; for it is as allowable to say that a horse is high behind, as to say that

he is low before; particularly in the general figure of horses. But since it is proved, that animals which Nature has designed for speed have more extent in their hind than in their fore parts; I should not consider it as a fault in a race-horse, if the withers lay below an horizontal line drawn from the rump, provided the difference should not exceed an inch and a half, or two inches; if it exceeded this, the hind legs would impel the body with too much force upon the fore legs; and the weight falling at each pace upon the fore legs in an oblique direction would overload them, and retard their action. This fault would be increased, if the head was too voluminous and the neck too long.

If the withers were higher than the rump, there would result a contrary effect to the preceding, but which equally tend to retard the progression, since the hind legs would be obliged to overcome the resistance of the body in an oblique direction upwards; this is an uncommon fault. Whether the

the horse be too low or too high before, the rider may restore him to the equilibrium so necessary for the freedom of translation, by bringing the centre of gravity of his own body, before or behind the centre of gravity of his horse's body. By thus reasoning his seat, he may lessen the defect which a blind practice cannot fail to increase. It is not sufficient merely to increase or lessen the weight which horses are to carry, in order to establish an equality between themselves, or to equalize their speed; it is necessary to make a just division and distribution of the weight upon each separate individual. The rider should likewise reason well all his motions and actions; for the least of them is capable of producing a sensible effect. A quarter of a second becomes an important division of time in a race. None better know its value than they who lose or win by the length of half a head.

Defect

Defect in the Length of the Body.

The measure of Eclipse's body, taken from the extremity of the buttocks to the chest, proves that a race-horse is not to be contained within a perfect square, since the length of his body exceeded its height nearly by one tenth.

If the body were longer, the loins would be too flexible and weak; their vigour depends upon their shortness; for the vertebræ of the loins are thus closer to each other, and intimately united by shorter ligaments: the muscles which move them are also stronger, being shorter and thicker. A horse thus constructed would be unpleasant in the manage; but what is there considered as a fault, becomes a requisite and essential quality in a race-horse.

The firmness of the loins of English horses, the little freedom of their shoulders, a passion for

riding fast over a level country, and the impossibility of sustaining a long journey without rising from the saddle, are the reasons, resulting from necessity, which directed to the first principles of English horsemanship; principles which it is my design to examine in a future work.

Shortness of the Body.

When the body of a horse is too short, the column of the spine is naturally stiff and inflexible. The motion of the loins is so much confined, that the vertebræ of the back and loins appear to compose but one piece. The quadrilatural figure, formed by the four legs, is reduced, through the approach of the hinder to the fore extremities. In this position the limbs have less power of extension, both backward and forward; and there results a real loss to the progression.

Natural

Natural Direction of the Back and Loins.

The spine, which reaches from the withers to the rump, should describe an horizontal line. For this purpose, it is necessary that the points of which it is composed (that is to say the vertebræ of the back) should unite by surfaces vertically cut ; the whole is then complete, and the pressure of the hind legs against so well-constructed a column is communicated to all its parts, and produces at the same moment of time an entire removal of the whole line from its first station forward.

Of the Bending of the Back inwards.

If the column of which we have just spoken is bent inwards, we say that the horse is hollow or saddle backed. If it is bent outwards, we say that

that he is ass-backed. In the former case, the animal is never securely strong; the muscles labour even in a state of inaction; the weight of the viscera of the lower belly serves to increase the bend of the spine; the rump is unsteady in its paces; and the pressure of the hinder extremities rather tends, in its immediate effect, to unite the two extreme points of the spine, by displacing the intermediate ones. This faulty construction, then, evidently retards progression, since the fore part of the animal receives but slowly and feebly the effect of the action of the hinder part.

Of the Bending of the Back outwards.

The shortness of the body only brings the four legs nearer to each other, but does not any way impair their perpendicular; whereas the outward curvature of the spine not only brings the four legs nearer to each other, but gives them more-

over an oblique direction, which diminishes the stability of the machine, and abridges the paces of the horse; because the hind leg is obliged to leave the ground as soon as it has attained its perpendicular; while in a horse, whose position is good, the space which the legs describe extends from the oblique forward, through the perpendicular, to the oblique backward.

The opposite conformation to this is, where the four extremities are too distant from each other: in this case, the horse is defective in speed, inasmuch as the hind legs effect their extension, counting only from the perpendiculars.

Defect resulting from the Size of the Body.

The body of Eclipse, measured through, from the middle of the back to the middle of the belly, was one head and four parts in depth, as it is marked in the table of his proportions. But this would

would be too much in a young race-horse. It must be remembered, that when this measure was taken Eclipse was twenty-six years old, and that he was, of course, become more corpulent than in his youth.

The bulk of the belly does not only increase the weight of the mass, but incommodes also the action of the hind legs, which cannot attain the central point of the body. This fault is rare among race-horses, most of which are remarkable for the opposite defect.

Defect proceeding from too spare a Body.

The primary cause of the goodness of any horse must be the exact and regular performance of all the functions necessary to his system. A good organization of the viscera should then correspond to a good conformation of the outward parts. If, for example, the organs destined to digestion and

chilification are in a state of weakness and debility, the aliments will be ill digested, the chyle ill prepared, the nutrition imperfect, the whole system languid, and the horse will be incapable of sustaining violent races, which strain and try his wind. A belly that is too thin, and confined in the flanks, containing intestines of too inconsiderable a bulk, would subject the animal to all these evil consequences. I therefore think, that the body of a race-horse should be in the proporion of about twenty parts of a head; and I entreat proprietors of horses to make trial of this rule, in order to ascertain whether it be in harmony with Nature.

Defects in the Proportion of the Thorax or Chest.

Freedom and length in breathing, are qualities as essential to a race-horse as a good conformation in his limbs. If the capacity of the chest is inconsiderable, the viscera which they contain will be

be constrained in the performance of their functions. The blood, whose rapidity increases with exercise, will find its passage through the lungs with greater or less difficulty; the breathing will become shorter, and more accelerated; the animal will lose his wind; his legs will grow weak under him; and even suffocation may ensue, if he is imprudently urged beyond the limits of the vital powers which Nature has given him.

When the chest is too narrow, there follows a defect in the fore legs, which are by this means brought too near each other. This position renders them unfirm and wavering, and deprives the horse of confidence in his fore-hand; besides, that a horse thus constructed is liable to the pulmonaria. This disorder first discovers itself by leanness, copious sweats, and a continued diarrhœa.

A too capacious chest would be also a defect in a race-horse, by increasing the weight of the body,

body, and surcharging the fore legs: but if I had to choose between two horses, one of whom should have rather a large chest, and the other too narrow a one, I should decide in favour of the former; especially, if he was otherwise well organized in his limbs. The chest of Eclipse was singularly well made and proportioned.

It would nevertheless be possible to turn to account a horse whose chest should not enjoy all the capacity required, by moderating his exercises, and proportioning their duration to his powers. By following this method, the organs of breathing might be gradually accustomed to a greater labour, but always in relation and subjection to the primitive constitution of the individual.

If the fact prove, that the habits of a moderate exercise is capable of improving respiration, there can be no doubt but that this function, when in its perfection, may on the other hand sustain speed: if it can do it but for the space of a second

cond only, the end will be gained; since it does not even require that short space of time to render a horse useful or injurious to the interests of his master.

Trainers of horses, versed in the mysteries of their art, will, no doubt, pass hastily over my physical observations; but I hope that persons acquainted with the organization of the animal œconomy will condescend to stop, a little while at least, to examine them.

Of the Croup or Rump.

The size of the croup of Eclipse, as it is given in the table of his proportions, always has appeared to me too great; and the examination of the ileon bones has confirmed me in that opinion. The extent of the os pubis and ischion occasioned too great a distance between the hind legs; so that two lines drawn from the fore to the hind feet,

instead

instead of running parallel to each other, incline outward. This defect necessarily occasioned a degree of wavering in the croup, perceptible, and somewhat unpleasant, in his gallop; but the muscular powers of the animal in question over-ruled the little defects which subsisted in the mechanism of his skeleton. When the croup is too narrow, the muscles which communicate with the loins and extremities are thin, and consequently weak. It is easily conceived, that such an organization is a great fault in a race-horse.

FORE LEGS.

Of the Shoulder and Arm.

It would be needless to repeat here, the observations which I made on the mechanism of the shoulder, in the beginning of this essay; I will only add, that this part was too much loaded in Eclipse. It ought not, however, to be too spare;

spare; because the muscles would then be weak, and the motions of the shoulder-blade confined.

The proportions of the arm, or humerus, is commonly determined by that of the shoulder-blade. These two parts, forming together the sides of an angle, more or less open, give to the muscles, which move them, a greater or less power, in proportion as they remove them farther from, or bring them nearer to, the axis of motion.

Of the Fore-arm, or Radius.

The breadth of the fore-arm, being the effect of the bulk of the muscles which encompass the radius, indicates its strength in action. The extent of this action is the produce of the length of the part in question; for, supposing it to be freely jointed, it is evident that a radius of sixteen inches long will, in its progress forward, describe a portion of a larger circle than one that is shorter.

The length of the fore-arm is then of great avail to the speed of progression. This part was well proportioned in Eclipse.

Of the Leg, or Shank.

In proportion as the fore-arm is long, the leg or shank will be short. The shortness and breadth of this part secures its strength: if it is too thick, it is strong, but clumsy; if it is long and thin, it is weak; but the case is not the same if it be wide; because the force of the muscles will increase, in proportion as the tendon or sinew is removed from the centre of motion. I apprehend that a horse will be exempt from all reproach, who shall be made in this part like Eclipse. See the table of proportions.

Of the Pastern, Coronet, and Foot.

The pastern, coronet, and foot, bending in the same direction, and describing one line from the fetlock

fetlock to the ground, may be considered as forming together one piece.

A column possesses all its possible strength when placed perpendicularly; its stability is impaired in proportion as it is made to deviate from that direction. It should appear then, at first sight, that Nature had neglected the solidity and stability of the edifice, in giving an oblique direction to the basis of the four columns destined to support it. But her industry and wisdom are easily discernible in the sructure of those beings which she has gifted with the faculty of translation, since that faculty could not have effect, without the aid of those angles, whose number and extension determine the speed, in the displacing and translation of the body.

Not only the alternate angular disposition of the bony pieces which compose the columns, assist progression; but they also secure the viscera of the chest and lower belly from the shocks

which they must infallibly have sustained, had the percussion on the ground taken place perpendicularly. The angles, more or less removed from this direction, are so many springs lessening the effect of re-action. Thus, the obliquity of the pastern, coronet, and foot, wonderfully favour the views of Nature. This obliquity, however, may be too great or too small, according to the use which we wish to make of the horse.

Too long a pastern increases the flexibility of the fetlock, but lessens the leg. Horses thus constructed are extremely pliant and supple; they are much admired in the manage, because they communicate little re-action to the rider. But this elegance would become a fault in a race-horse; in which we require strength and solidity in the parts of which we are speaking. A shorter pastern, whose bulk is in proportion to the rest of the leg, will better sustain the weight of the body, and more strongly resist the re-action from the ground.

When

When the pastern is too short, the animal is almost direct upon his legs. This faulty position lessens the stability of his fore-hand, and renders him liable to fall at each step. An anatomical knowledge of the parts of which the leg is composed, will qualify us to judge of their relative proportions.

Eclipse having been foundered many years previous to his death, his fore feet were much disfigured. The havock made by this disorder having changed the direction both of the coronet and pastern, it was not possible for me to determine with precision the proportions of these parts. Briefly, our knowledge of horses must be very limited, if we are not capable of judging whether a horse is too long or too short jointed.

HIND LEGS.

Of the Thigh.

The parts which composed the hind extremity of Eclipse were remarkable for their length.

The femur formed with the os ileon a considerable angle, whence followed a great extent of motion. The length of the tibia gave a most beautiful proportion to the leg. The hock, through its width, possessed great strength, and its elastic quality or spring must necessarily have produced the greatest possible degree of extension. The leg or shank, the pastern, coronet and foot, corresponded to the good conformation of the upper part of the member. The proportions of each part may be seen in the table, and compared with those of a horse of the height of Eclipse.

Of the Perpendicular.

If we were to deny the necessity of a perpendicular position of the parts destined to the support of an animal body, we should openly arraign the laws established by Nature. The perpendicular not only insures the stability of the structure, by the exact arrangement of the bones one upon the

the other, and by an equal distribution of the weight upon each, but it also favours progression, by maintaining a perfect equability in the projection of the mass. When the legs are in action, each one receiving only its due share of the weight, and always in the perpendicular line, transfers its burthen to its neighbour with ease. The weight being thus received and sent, advances in proportion to the completion of the action of each leg. But if the perpendicular is disturbed; if the distribution of the weight is unequal; in a word, if any point of the base is overloaded, the harmony between the legs will be destroyed, and the progression will be retarded.

We may thence conclude, that without the perpendicular, the animal could not enjoy the stability required. Let us now see in what this perpendicular consists.

Perpendicular

Perpendicular Lines in Eclipse.

FORE LEGS.

For the convenience of the Reader, I shall recapitulate the perpendicular lines, according to the order in which they stand in the table of proportions. These lines are nine in number.

The 1st is a line falling perpendicularly from the articulation of the arm with the shoulder, to the toe of the fore foot.

The 2d line falls perpendicularly from the upper part of the fore-arm, or elbow, to the heel of the fore foot; after having divided longitudinally in its course the fore-arm, knee, and leg or shank.

The 3d falls from a little above the knee, and, dividing the knee into two equal parts, descends along

along the anterior surface of the leg or shank, pastern, coronet, and foot, dividing them also into two equal parts.

The 4th falls from the centre of the chest to the ground, dividing the interval between the two fore legs into two equal parts.

HIND LEGS.

The 5th falls from the stifle, or articulation of the femur with the tibia, to the ground, at the distance of half an head before the toe of the fore foot.

The 6th descends from the point of the hock, or the calcaneum, along the tendon of the hind leg, and, dividing longitudinally the thickness of the shank, fetlock, pastern, coronet, and foot, touches the ground, opposite to the opening of the frog.

The 7th falls from the centre of the buttocks to the ground, dividing the interval between the two hind legs into two equal parts.

The 8th falls from the withers to the ground, touching the point of the elbow in its course.

The 9th is only the line of the centre of gravity of the horse's body; it falls from the middle of the back, through the body, to the central point of the quadrilateral figure, described by the four legs.

The particular and relative position of the legs of Eclipse were sufficiently perfect to bear the application of the perpendicular lines which I have just described. Had there been any fault in their direction, I should have carefully noticed it in the plate. I will now inquire what are the inconveniences which would result from the interruption of the perpendicular in each particular line.

FORE LEGS.

Interruption of the Perpendicular in the first Line.

If the foot is placed before the first perpendicular line, the leg will stand obliquely forward; it will cover less ground in its action; the duration of its stay upon the ground will be abridged; the stay, which will be only on the heel, will communicate to the body a kind of repulsion, inimical to progression. In horses of this kind, the fore legs come upon the ground nearly in the direction of those of a horse on the descent.

If the obliquity of the leg is behind the perpendicular line, the animal will be ever on the point of falling; because the foot, being drawn too near the centre of gravity, will have to sustain a larger share of the weight of the body; the bending of the leg will be troublesome, and his paces will be abridged.

Interruption in the second Line.

The leg deviates from the second line, by standing before or behind it. The inconveniences which result from this are, therefore, the same as those which we have just described. Sometimes this faulty direction originates at the knee, in which case the horse is said to be bow-legged. In either case he must be rejected as a racer.

Interruption in the third Line.

When the lower extremity of the limb exceeds the perpendicular line, the bony parts are ill united; they do not bear exactly on each other; the distribution of the weight being unequal on every part of the circumference of the foot, the tread is less firm, and the steps more or less confined. Commonly, the perpendicular line is only disturbed

disturbed between the fetlock and the ground. The foot, likewise, is sometimes turned inward, and sometimes outward. These faults, according to their degree, are more or less hurtful to progression.

Interruption in the fourth Line.

The perpendicular can only be interrupted in the fourth line by the knees bending inward ; or by the feet being placed too near to each other, occasioned by the outward inclination of the fore-arms. In the former case, the legs move out of the line of the body, and throw aukwardly, one to the other, the weight which they sustain. From this action results a lateral motion, contrary to that of progression. It is the same, but inversely, with regard to the second case. Moreover, the too near approach of the feet impairs the stability of the horse, and renders it more difficult for him to preserve his balance in action.

HIND LEGS.

Interruption in the fifth Line.

We have seen in the table of proportions, that the toe of the hind foot of Eclipse was distant half a head from the perpendicular line, which falls from the stifle to the ground. If the feet advance nearer to this line, the hocks must proportionably bend; the weight of the body will be increased upon them, even in inaction; the position of the feet being too near the centre of gravity, will render it impossible for them to cover much ground, and their step will be very much confined: the extension of the hock taking place from the perpendicular, will rather occasion the elevation of the body, than aid its advance; from all which it may be perceived, how much this fault must influence on speed.

If,

If, on the contrary, the hind feet stand too far behind this line, the hocks will be nearly straight; their flexion will be limited; the feet will not be able sufficiently to approach the centre of gravity; they will cover less ground; and the extension of the hinder parts will be partial, taking place only from the perpendicular backward. Thence there must be a loss of speed, relative to the remainder of the spaces which the legs ought to have embraced.

It is commonly thought, that, in the paces of a well-proportioned horse, the hind feet ought never to pass beyond the fore feet. This notion, however, is contradicted in a good race-horse; the extent of the hind quarters of such a horse, and the freedom of their action, convey the hind feet much beyond the centre of gravity; and I conceive this to be true of all animals which Nature has designed for speed.

Interruption

Interruption in the sixth Line.

The same fault in the legs, which interrupts the perpendicular in the fifth line, interrupts it also in the sixth; consequently, the inconveniences which result are the same.

Interruption in the seventh Line.

When the seventh perpendicular line passes either within or without any of those parts which it ought to divide longitudinally into equal divisions, the perpendicular is evidently disturbed in those parts. Whether the fault exists in the hock, the bones of which, being ill disposed, do not bear equally upon each other; or whether it originates in the articulation of the fetlock, which is defective from the same cause, the legs lose more or less of their power, because their tread does

does not take place upon the line of the body, and all motion which deviates from that line is a loss to the progression.

Interruption in the eighth Line.

The perpendicular may be disturbed in the eighth line; 1st, by the great breadth of the croup, and the approach of the hind feet to each other: this defect is rare among race horses. 2d. By the femur inclining outward; a direction which affects all the rest of the limb, bringing the hocks together, and turning the feet outward. 3d. The interruption of the perpendicular may begin at the hock; the bones of which, being ill arranged, may determine the joint inward. Whether the hocks bend outward, as in the former case, or whether they bend inward, as in the second and third cases, the leg will not be able to move upon the line of the body. The croup will waver to the right and left; and all the lateral motions

will be so much loss from progression. Whatever, then, may be the strength of the loins, and of the other parts, a true and exact perpendicular in the hind legs is of the first degree of importance, since that the slightest interruption in this respect must affect the speed. It is not exactly the same with regard to the fore legs, whose office is rather to sustain the body than to convey it forwards.

The 9th line only determines the proper situation of the withers.

The 10th line is no other than the direction of the centre of gravity of the animal's body.

In judging of the perpendicular in a horse, there is no necessity to have the rule, compass, or hippometer always in the hand; he who has studied the skeleton, will acquire a sufficient degree of accuracy to satisfy himself of the good or bad position of the legs by surveying them sideways,

ways, in front, and behind; particularly, if he takes good care that the horse be placed on a perfectly level ground.

Those who differ materially from these principles will object to me, no doubt, that all race-horses are not cast in the same mould; that they are not all shaped exactly alike; and, consequently, that the same rule cannot be applied indiscriminately to all. I answer, that the difference which they think they see between two horses whose speed is nearly equal, can only deceive those whose knowledge does not extend below the outward surface of the body. Even the difference of colour may do away, to the eye, the identity of proportions; but he who is well acquainted with the construction and mechanism of the organs of progression, will not allow himself to be deceived by the first appearance. He will discover, and recognize a conformity, in parts which at the first sight appeared to him en-

tirely dissimulation. I acknowledge, however, that a great disparity in the natural constitution of individuals, may sometimes weaken the force of my observations; but it can never entirely destroy it.

There can be no doubt, but that of two horses of the same size, the one may be speedier than the other, because the texture of the organs may be compact and close in the one, and weak and relaxed in the other; but this exception cannot affect the general rules which I have laid down in the course of this essay. These rules can direct a great way in the choice of a race-horse; they may also save any one much trouble and anxiety, who is fruitlessly endeavouring to exact from a young horse a degree of speed which Nature has refused him. I entreat proprietors of studs to impress themselves with these observations; to apply them to colts at least a year old; and to convince themselves, by experience, whether or no they comprise any useful truths.

Six

Six complete Actions of the Gallop.

PLATE II.

This plate represents six complete actions of the gallop of Eclipse; each action covers twenty-five feet. The six actions, marked with the figures 1, 2, 3, 4, 5, 6, offer a scale of 150 feet.

It is well known to all who have observed the action of the horse, that the gallop consists of a repetition of bounds or leaps, more or less high, and more or less extended, in proportion to the strength and lightness of the animal.

The common gallop contains three *times*. If the horse, for example, begins his gallop on the right, the left hind foot beats the first time; the right hind foot and left fore foot beat the second time together; and the right fore foot beats the third.

In

In the gallop of four *times*, the feet strike the ground in the same order as in walking. Supposing the horse galloping on the right, the left hind foot beats the first time, the right hind foot beats the second, the left fore foot beats the third, and the right fore foot beats the fourth. This gallop is regular, but confined, and but little adapted for speed.

The gallop at two *times* is faster than that at three, or at four; the legs follow in the same order as in the trot; so that the two sounds are given by the left hind foot and right fore foot striking the ground together, and by the right hind foot and left fore foot all striking the ground together.

Explanation

Explanation of Plate III.

Fig. I. Represents a very broad hock.

A. The tibia.

B. The shank.

C. The calcaneum.

DD. The two lines which proceed from the centre of the joint, form the sides of the angle of the hock.

E. The portion of the circle contained between the two extremities of the two branches of the angle, shews the openness of the angle of the hock. This angle contains 40 degrees.

F. The union of the two branches of the angle, at the centre of the joint of the hock.

Fig. II. Represents a hock, somewhat smaller than the preceding.

A. The tibia.

B. The canon.

C. The

C. The calcaneum.

DD. The two branches of the angle of the hock.

E. The portion of the circle contained between the two extremities of the two branches of the angle, shews the openness of the angle of the hock. This angle only contains 30 degrees.

F. The union of the two branches of the angle, at the centre of the joint of the hock.

Fig. III. Represents a very long shoulder, and in a very oblique direction.

A. The shoulder-blade.

B. The arm or humerus.

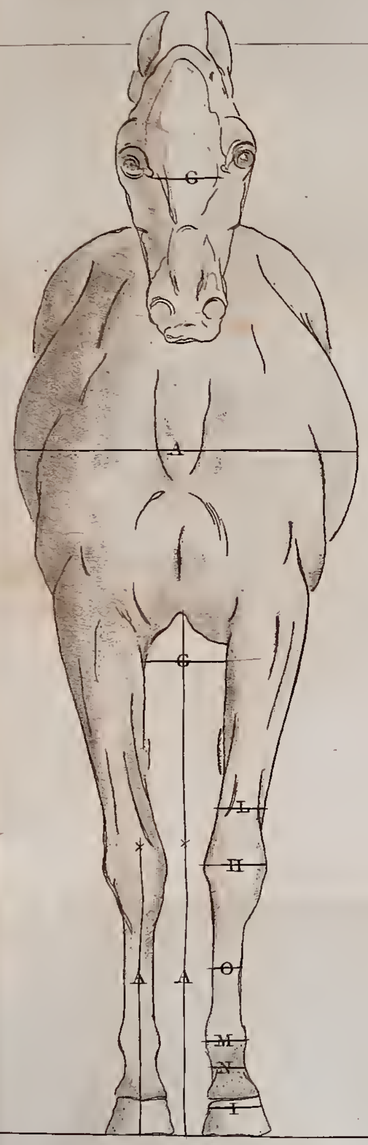
CC. The perpendicular line which marks the extent of the motion of the shoulder.

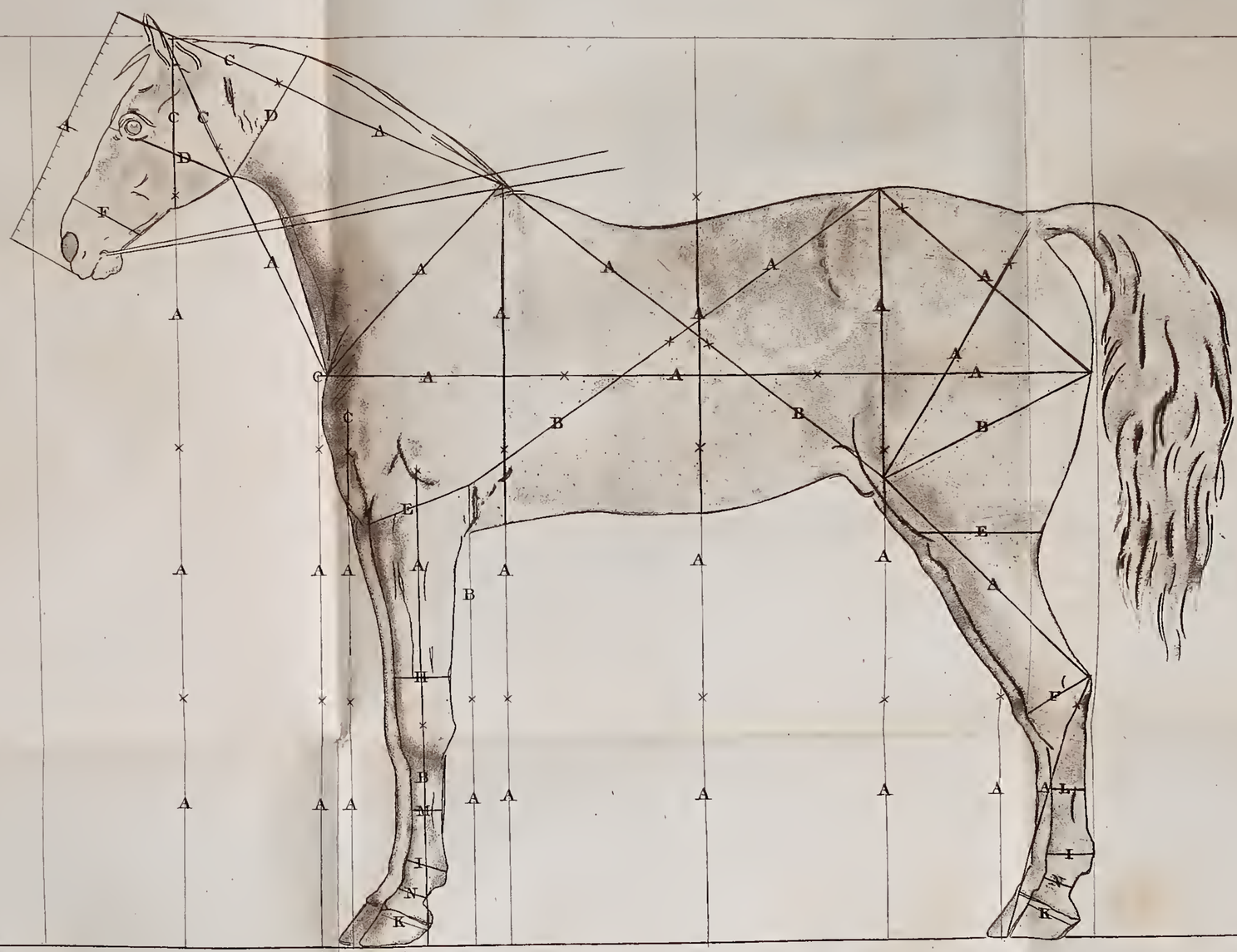
DD. The centrical line of the shoulder-blade.

EE. The two parts of a circle which the shoulder describes, forward, backward, upward, and downward. These portions contain each 40 degrees.

Fig.

Geometrical Drawing representing the exact proportions of the late Famous Eclipse.





ECLIPSE was the property of *Denis O'Kelly Esq.* was bred by the late D: of Cumberland & was bought by M.r Wildman for 46 G.s at the sale of his Royal Highnesses Stud, who afterwards sold him to his Late - possessor for 1700 G.s In 1769 he won 50 G.s - 50 at Epsom - 50 at Ascotheath Heath - the King's 100 G.s & 50 at Winton - the 100 G.s the Bowl & 30 G.s at Salisbury - & the King's 100 G.s at Canterb.y Lewes & Litchf.d In 1779 he received forfeit 600 G.s at New Market & the King's 100 G.s - The King's 100 G.s at Guildford - D.o at Nottingham - D.o & 319 10 at York - the King's 100 G.s at Lincoln - 450 G.s Rupwanks & the King's 100 G.s again at New Market. He was never beat. - Eclipse was got by Mask a Son of Squirt which was got by Bartlets Childers his Dam by Regulus his Grandam by a full brother to Wildmans Squirrel his G.d Grandam by L.d Daveys Montagu his G.d G.d Grandam by Hautboy his G.t G.d G.t Grandam by Brimmer Son of the Oglethorps Arabian he Died the 27.th of Feb.y 1789 in the 26.th Year of his Age.

London. Printed for Martin & Bain, Fleet Street. May 1.st 1796.

Fig. IV. Represents a shoulder as long as the former, but in a less oblique direction.

A. The shoulder-blade.

B. The arm or humerus.

CC. A perpendicular line, which marks the extent of the motions of the shoulder.

DD. The centrical line of the shoulder-blade.

EE. The two portions of a circle which the shoulder describes, forward, backward, upward, and downward. These portions contain only 30 degrees each.

THE END.

PEDIGREE OF ECLIPSE.

THIS famous horse belonged to Mr. O'Kelly: was bred by the late Duke of Cumberland; and bought by Mr. Wildman, out of His Royal Highness's stud, at a public sale of some of his horses, for 46 guineas: who afterwards sold him to Mr. O'Kelly for 1700 guineas. In 1769 he won the 50 guineas sweep-stakes, and the 50l. plate at Epsom; 50l. at Ascot Heath; the King's plate, and the 50l. plate at Winchester; the 100 guineas; the cup; and 30 guineas at Salisbury; and the King's plate at Canterbury, Lewes, and Litchfield. In 1779 he received 600 guineas forfeit at Newmarket, and also won the King's plate; the King's plate also at Guildford, Nottingham, and York; also 319l. 10s. at the latter place; the King's plate at Lincoln; and again at Newmarket; as also 150 guineas, besides many other considerable sums. He was never outrun.

Eclipse was got by Mask, son of Squirt; who was begot by Bartlet's Childers; his Dam was begot by Regulus; his grand-dam, by a brother of the whole blood of Wildman's Squirrel; his great grand-dam by Lord Darcey's Montague; his great great grand-dam by Hautboy; and his great great great grand-dam by Brimmer, the son of Oglethorpe's Arabian.

He died Feb. 27, 1789, in the 26th year of his age.

A LETTER *from M. Broussonet*, M. D. *perpetual Secretary to the Royal Society of Agriculture in Paris, and Fellow of the Royal Society of London, to Mr. Sainbel.*

(TRANSLATION)

Paris, March 16, 1790.

SIR,

THE two letters which you have done me the honour to write, and the box which contained the engravings of Eclipse, have reached me safe. I should not have delayed so long to thank you, nor to acknowledge the reception of them, but that I intended to have conveyed you the same by means of a friend who at that time was about to depart for London, but who has since altered his mind. Have the goodness, my dear Sir, to accept my best thanks for the packet that you have had the kindness to send to me. The explanation which you give of the move-

ments

ments of the horse appears to me extremely interesting and proper to give an advantageous idea of veterinary knowledge in a country where that art has not yet been practised upon principle. Inclosed you will find, Sir, the letter which you desired me to write to Sir Joseph Banks. And I have likeways sent another letter in your favour to another of my friends, Dr. Smith. I shall be extremely happy to hear that your situation in London is in every respect agreeable to you; and it will be ever the highest satisfaction to me if I can in any measure contribute to it.

I have the honour to be, with the sincerest attachment,

Sir,

Your very humble and

Very obedient Servant,

BROUSSONET.

THE

POSTHUMOUS WORKS

OF

CHARLES VIAL DE SAINBEL,

LATE

Equery to the KING, and Head of the Academy at Lyons; Ancient Professor of the ROYAL VETERINARY SCHOOL of the same City; Demonstrator of Comparative Anatomy at MONTPELLIER,

AND

PROFESSOR TO THE VETERINARY COLLEGE OF LONDON.

TRANSLATED FROM THE ORIGINAL FRENCH.

London:
Printed for MARTIN and BAIN, No. 184, FLEET-STREET.
Sold also by MESS. B. & J. WHITE, Fleet-street; MR. FAULDER, Bond-street; MR. EGERTON, Whitehall; MR. SEWELL, Cornhill; and MR. RICHARDSON, Royal Exchange.

1795.

GENERAL OBSERVATIONS

ON THE ART OF

VETERINARY MEDICINE.

I.

DISEASE is the lot of all organized bodies; man, brutes, and even plants, are subject to it.

It is that deviation from health, which, in a greater or lesser degree, disorders the frame and spirits, yielding either to some critical effort of Nature or of Art, or, by its unremitting resistence, destroying the fabric by producing death.

II.

Health then being the regular discharge of all the functions of the body, and of the faculty of freely and perfectly exercising them; and death, on the other hand, being the entire extinction of that faculty, and a total cessation of those functions; we can form no other conception and conclusion respecting the interval between the derangement, either in the general frame, or in some of its parts, which more or less disturbs the harmony of its motions, than what constitutes precisely that which is called and known by the general name of disease.

III.

To prevent, as much as in us lies, the origin of those disorders in animals, which do not arise from

from accident, infection, or contagion; by attaining to a knowledge of that kind of food and treatment which is conducive to health, and by carefully avoiding to administer that which may be noxious and prejudicial to it; to mitigate the violence of those disorders which reduce the value of animals, without at the same time rendering them altogether useless, and also to endeavour to subdue and eradicate others by every method which the knowledge of things suitable to each disorder can suggest, is the object of the veterinary art.

IV.

The object of this art is therefore not only congenial with that of human medicine; but the very same paths which lead to the knowledge of the diseases of man, lead equally to the knowledge of those of brutes. An accurate examination of the interior parts of their bodies, a studious survey of the arrangement, structure,

form, connection, use, and relation of these parts, and of the laws by which they are intended to act, as also of the nature and properties of the various foods, and other agents, which the earth so liberally provides for their support and cure; these form, in a great measure, the sound and sure foundations of all medical science, whatever living individual animal is the subject of our consideration.

V.

It is evident therefore, that veterinary medicine requires a degree of knowledge of no less extent than that which is exercised upon the human body; and we may venture to assert, without infringing the respect due to the latter, that the former is in very many instances obliged to engage in more minute researches, and in longer and more laborious investigation; it is not, like human medicine, limited to the study of one species

cies only, it commprehends the care of every kind of useful animal; the preservation of which forms its peculiar province; it is indeed true, that researches multiplied in the examination of different subjects, whose respective mechanisms all conspire to produce nearly the same effects, afford great advantages to the veterinary physician, by enabling him, from comparison, to throw additional light on many subjects.

VI.

If, pursuing this fascinating track of investigation, we wish to avoid falling into error, we must studiously guard against the illusion of self-conceit, and of that presumption which seems ever to take delight in concealing from our reason the impassable line Nature has drawn between herself and us, by not hastily deducing as conclusive, from the first data we may acquire, consequnces which experience may afterwards demonstrate to have

have been too hastily drawn: In rejecting all speculative inference and theory, concerning the structure and functions of the different parts, however apparently well founded; in not submitting our judgment to mere authority; in becoming the slave of no opinion; in discarding every prejudice; in admitting for truth that only which has been faithfully deduced from a steady, constant, and unprejudiced observation. In a word, by yielding only to facts, and being guided by their immediate consequences; which alone will effectually guard us against the dogmas of system, the monument equally of the erring pride and weakness of the human mind, which, though it may impose for a while, will sooner or later, by experiment and reason, be done away.

VII.

Principles thus confirmed to us by practice, and from which no consequences are attempted to

to be drawn, but such as naturally flow from thence, can never mislead us. An accurate and quick eye, a ready and happy penetration, a free and sound judgment, are qualities rarely concentred in one person, though indispensable in order to become eminent in the art of physic or of surgery: how exquisite must be the discernment and touch, to judge of and determine with some degree of certainty the existence of particular diseases, their causes and kind, their seat, state, and progress; to draw, by comparing different appearances, the proper inference; and by analogy, amongst a multitude of symptoms, resulting from a variety of constitutions and habits, to anticipate the issue; to attain to the means wherewith to subdue it, by the particular circumstances of the subject attacked; and lastly, to suspend or abate our efforts when we have arrived at that point beyond which we cannot proceed without being involved in risk and uncertainty!

VIII.

VIII.

Nor is less judgment required in our attention to every step of Nature in this oppressed situation, in order to discover the course and method she designs to adopt for relief; or, if she fails in her indication, to urge her, by a seasonable interference, to discover it; which if happily attained, to second by every skilful aid the efforts she makes for such relief; but if her indications are of an unpropitious nature, to moderate, and endeavour to controul, those which are tumultuous and acute, whilst we assist and support such as are weak and insufficient; and thus by conforming with unwearied attention and judgment to her designs, to arrive at the most gratifying situation of human art, the being able to subdue and extinguish those causes and things which are injurious and destructive, or at least to provide against the evil consequences they might occasion

casion if not thus treated. Thus led on by caution and skill, we shall not interfere with what is entirely dependent on Nature; but confine ourselves scrupulously within the limits of art, so far as relates to her indications and to her relief.

IX.

No one therefore can be so absurd to imagine, that it is possible without preparatory study, and a due course of investigation and experimental knowledge, to attain to the great ends before mentioned. Without these acquirements, the art of medicine is an hypothesis, which neither natural endowment, or mere instinct can sanction; and of course it is liable to such perpetual error, as must lead to consequences the most dangerous. On the other hand, we are not to place implicit confidence in study alone, or to give intire credit to any decision proceeding from this single source, when the grand question of life and health is con-

cerned: so also the man who relies upon practice alone (being destitute of the fundamental principles of study and investigation) will meet with so many obstructions and mortifications in the exercise of his profession, that he will lament his want of those acquirements, which are the result of properly blending study and investigation with practice.

X.

It is then from a due combination of study, investigation, and practice, that we can attain to the solid effects and advantages of enlightened and successful science: united and directed by skill and sound judgment, they mutually support and correct each other; they embrace all that is beneficial, salutary, and consolatory to afflicted Nature.

XI.

XI.

Unhappily for veterinary medicine, it is at present lamentably deficient in all these acquirements; yet having access to the great mine of knowledge, derived from those philosophers and original investigators, of the organization and texture of the various animals subjected to their researches, either when devoted to public sacrifice, or to the more painful, yet useful discovery, by living subjects, not only tracing in that organization and texture, but also from whence the great and essential causes of life and death: (investigations which have proved of the greatest general benefit:) the veterinarian may find not only substantial information, but be induced to open the wonderful page of modern discovery so far as relates to the human structure. These great lights, if zealously followed, will lead us on, and become the surest pledges of a real progress and im-

provement in the art. But, in pursuing our researches, we must use every caution, that we do not graft upon analogy what may be productive of error: to guard against which, we should have recourse to investigation and experiment faithfully pursued; to comparison and inference accurately made and cautiously deduced.

XII.

Having proceeded in my general observations so far as they relate to the fundamental principles of the art, I shall now proceed to elucidate and confirm the necessity of a strict adherence to these principles, by a short view of the present state of veterinary knowledge and practice in what is called farriery, and cow-doctoring, &c. in Great Britain, from the information I have been able to attain respecting the mode and manner thereof.

As very many of the hereditary dispositions of a number of animals of different kinds, collected

for the purposes of agriculture, manufacture, and commerce, are, by being continually dispersed into counties they were not bred in, so altered, that it is not possible for any local data to be formed as to those diseases which seem to prevail, and to belong to one county, and not to another: So neither can we say, with certainty, from whence the superior strength, or inferior weakness; or why the morbific cause of disorders, which appear to be almost hereditary in one part of the kingdom, do not shew one similar symptom in another: Or why the county of Suffolk should produce a short, close-made, strong, under-sized breed of horses, when that of the mid-land counties nearly doubles the size of the Suffolk horses: Or why the counties of York and Durham should excel the rest for racers, hunters, and hacks: Neither are we better informed of the manner of breeding which they have hitherto practised; the quantity and quality of food, or of water, to which they have been accustomed; nor, with precision, the specific kind

of

of labour to which they have been put; or of the hereditary and prevalent disorders to which the animals of the different counties are most subject: much less has there been any regular record of the application and effect of medicine for their relief, so that we might be better able to investigate, and generally assist the veterinary practice. All at this moment appears obscured or bewildered by the ill-placed confidence of the owners of cattle upon the blacksmith of the parish; upon illiterate and conceited grooms, stupid and listless shepherds; or upon a set of men infinitely more dangerous than all the rest, who, arrogating to themselves the style of doctors, ride about from town to town distributing their nostrums, compounded of the refuse and vapid scraps of druggists shops, to the destruction of thousands, whose varied disorders they treat alike, neither consulting nature or art for the cause or the effect.

Miserable animal! bereft of speech, thou can'st not complain, when to the disease with which

thou art afflicted, excruciating torments are superadded, by the ignorant efforts of such men who, at first sight, and without any investigation to lead them to the source of thy disorder, pronounce a hackneyed, common-placed opinion on thy case, and then proceed, with all expedition, to open thy veins, lascerate thy flesh, cauterize thy sinews, and drench thy stomach with drugs, adverse in general to the cure they engage to perform.

Opposed to this barbarian and noxious practice, let us turn our eye to that of the veterinary physician and surgeon. We shall not find him occupying the attention of his auditors with accounts of miraculous cures he never performed; or, under the mask of sullen arrogance, endeavouring to attract confidence: we shall not see him armed at all points with fleams, rowelling-knives, and cauterizing-irons, to rack and torment his suffering patients; or with drenches and balls, to obstruct the efforts of Nature. We shall see him, with a cautious eye,

and

and tender hand, surveying and examining, with discretion and judgment, into the case before him; and, as far as he can attain information from those who bring the animal to him, we shall find him an anxious and patient enquirer: proceeding to explore all the external signs, and to observe, with great minuteness, every symptom which presents itself; and, if he finds them so complicated he cannot proceed with certainty to give an opinion, he will wait till some new, or more distinct appearances come to his assistance. If, however, these signs should not shew themselves to a given effect, he will then apply to the only resource left him, that of compelling Nature to develope herself, or, at least, to shew some indications. This he accomplishes by stimulating her, through the means of medicinal aid, administered in proper quantities, which, by encreasing more or less sensibly, the disease, produces some discovery of its tendency.

But if the case proves intricate and obstinate, accompanied by a vicious turn of temper in the

animal, far from being discouraged, it only encreases his ardour, and stimulates his zeal. He summonses every power, and tries every method, to put in practice those principles of science, and of art, he possesses, to meet all the dificulties of the case. If, however, after these efforts, he finds he cannot ascend to first causes, he then guides himself by the most favourable indications he can attain; and he is sometimes so fortunate, by following half symptoms only, to overcome some of the most obstinate cases, though he could not reach the immediate source of the disease.

This close attention, and method of treatment, is extremely necessary, nay, indispensable in most cases of epizootic contagion; more especially when it proceeds from the temperature and condition of the air, or from the vitiated quality of the grass, and other herbs on which cattle feed.

Always judicious in the choice of his medical apparatus and in the administering of drugs, he avoids the discordant medley, and pernicious recipes and treatment too frequently laid down in farriers' books; well knowing, that both human and veterinary science would soon fall into error, if the same drug, which acts differently upon different habits, was to be administered alike to all: that therefore, according to local circumstances, habit, temper, and symptom, must be his mode of prescribing the remedy to the disease. For want of this discernment and circumspection, the most salutary medicines have frequently proved pernicious. Add to this the dreadful effects often produced by the unskilful speculatist's tampering with the medicinal properties of drugs, the inherent qualities of which he is totally ignorant of. At the beginning of a disease, the veterinary physician prudently prescribes those medicines only which are mild in their effects, in order to gain a more clear knowledge of the constitution of his patient, and also that he may not occasion any unfavour-

unfavourable turn or alteration in the disease itself; thus sparing the habit of the sufferer, he obtains more solid advantages than by sudden, violent efforts: He is also governed, in some measure, by the temperature and state of the air. He prescribes active medicines for animals whose muscular texture is feeble and unelastic, and whose juices are not sufficiently fluid: He pursues a different treatment to those whose elasticity and fluids are more susceptible of irritation; varying his efforts as the necessity of each case requires: He never provokes evacuations till he has allowed Nature sufficient time for providing the proper matter to be evacuated, and that the passages are in an open and free state for such an effort: He guards against their taking place through irregular or improper channels; and that the operation of one should not interfere with those it may be thought right to promote at the same time in another part of the body. He is particularly attentive to the critical evacuations, or efforts which Nature makes, at

some stages of a disease; and if she appears too languid, or feeble, to perfect them, he co-operates with her, by every aid in his power. He knows how to distinguish acute from chronic; and to adopt the proper mode of treating each of these diseases: His skill assists him to remove or divert, from the *vitals* to the less-essential parts, those disorders which would soon prove fatal to *them*, but not so to the other: And he adds, a proper regimen, rigorously adhered to, in aid of his medicinal efforts; debarring the animal from all solid food, wherever it may, from the state of the disease, become corrupted by the fluids which contribute to a wholesome digestion, being unable to perform this salutary office. Thus accomplished in science and in art, if he can say that a part of his knowledge was obtained in that universal school an hospital, he feels himself perfectly conscious in his abilities: If to these acquirements he adds those of liberality and honour, he makes the *utile dulcis*, the pleasure of being useful, precede every sentiment of reward.

It

It would not be lost time, if the student was to attain to an use and readiness in stenography, or short-hand writing: this would enable him to store up much information, and to correct many errors in practice, by noting the minutiæ, as well as the more striking circumstances, that have attended his successes, or his failures; he would be in possession of every word that has been pronounced, and of every elucidation that has confirmed the observation; it would also enable him to mark with more precision his own inferences and opinions.

AN

ESSAY ON THE GREASE,

OR

WATERY SORES IN THE LEGS OF HORSES.*

"I wish that every one would only write
what he knows, and as much as he knows."

MONTAIGNE.

I.

THE grease is in general a cutaneous chronic disease, sometimes inflammatory, sometimes infectious; and I have known it contageous: it invades the legs of horses, asses, and mules; but seldom attacks those of the ruminating species.

II.

* This Essay obtained the prize given by the Royal Society of Medicine; it being the best treatise produced on the subject that year. Vide page 10th of the Memoirs.

II.

It discovers itself by an obstruction either in the coronet, in the pastern, or in the fetlock joint, attended with pain more or less violent. These first symptoms compel the animal frequently to raise the affected limb suddenly, as though touched with something sharp or rough. If these irritations are not mitigated in this stage of the disease, they soon encrease, and produce a grey or green fœtid sanies, which, oozing through the skin, excoriates wherever it is suffered to lodge, and adds not only to the inflammation, but irritation of the part affected. In this second stage of the disease, the inflammation and obstruction generally rises upwards, spreading itself sometimes as high as the knee or hock; the animal then becomes lame; and if put to work, from the part affected oozes a thin, ichorous matter, tinged with blood; the running humour assumes

assumes soon after a spissitude, and becomes unctuous and greasy to the touch. If the disease affects the coronet, it makes the horn of the hoof grow, rendering it at the same time soft and spongy, sometimes unsoldering and separating the hoof from the crown, and but too often destroying the frog of the foot: the stubbed hair, called the bristle, falls off, shewing the skin sometimes of a dead white, at other times of a livid colour, and oedematocis full of little bladders, many of which, becoming confluent, soon form ulcers, in part covered with granulated flesh, resembling a fungus, called, by some, warts, grapes, proud-flesh, &c. others, being more confluent, resemble the outward coat of a pine-apple, or a large piece of a honey-comb; however, in my opinion, if this disease appear on the coronet, it is better denominated the crown scab; on the heels, an ulcerated frog; upon the fore part of the pastern joint, and about the hoof, a quitter; along the tendons, rat-tails; and mallenders and sallenders, when on the joints of the knees and hocks.

These ulcers often allure, during the summer and autumn, that species of fly which delights to lay its eggs upon unsound or corrupted flesh; these soon assuming the form of maggots, they add a stimulus to the disease, and by making deep chaps, exuding a purulent, discoloured sanies, attended by a steeming vapour of so volatile and acrimonious a quality, that, by its itching, the animal is tormented nearly to madness: it corrodes and destroys the teguments, over which it runs as powerfully as the most active and strong caustic. In this stage of the disease, it is very difficult to cure hurts from bad shoeing; and wounds, or punctures, by cuts, or nails perforating the foot; over-reach cuts, or a sandcrack. Lastly, the skin gradually extends by the encrease of these sanious humours; the discharge becomes so abundant, that every hair left upon it serves to convey, in large and successive drops, a brown or blueish liquor, whose intolerable stench pollutes the circumambient air, rendering the road, pasture, or stable, not only offensive,

offensive, but, in the confined state of the latter, actually noxious: this stench is as characteristic of the grease in its last stage, as the one which attends the farcy marks its fatal ravages and period. The leg now becomes an inflated, cumbrous mass of disease; and its motion is limping, attended with great and inflexible stiffness from the anchilosis which seems to take place in the joints; the bone spavin comes on, and the limb nearest that which is thus affected, at times partakes in some measure of the disease; the animal wastes away; and, though the appetite may yet remain, he falls into an athrophy, and is long useless before he is worn out or dies of the disease.

I have observed that the hinder limbs are more frequently affected with this disorder than the anterior; and that though the foreging description of it embraces the general course of its progress and symptoms, yet the veterinarian must expect to encounter many appearances which materially differ, as the constitution, air, food,

work, and exercise, of the subject attacked differ. However, one data, I conceive, will hold good, that this disease cannot be deemed acute, but chronic; and also never reaches its last stage before the term of three months, seldom before nine; and that sometimes it holds its dread career much longer.

III.

Such is the progress of this loathsome disease, generally speaking, when, under the accumulated weight of neglect or unskilful treatment, nature has been perverted and distressed, and her efforts for relief baffled, either by the indolence of the owner, or the more slovenly and injudicious attempts of the empirical blacksmith, called a farrier; and as the latter but too often oppose this disease by violent applications, such as astringents desiccatives, and sometimes with oily substances, by which they clog and choke up

up the pores, they bring on lameness, dry spavins, foundering, excrescences, tumours, nodes in different parts of the body, and the mange, frequently ending in a foul and confirmed farcy, thus substituting, or rather producing, a greater evil than the one they falsely boast to have cured: from hence also the oedematous swelling of the belly; abcesses in the neck, frequently terminating in a fistula or the pole-evil; a diseased viscera; water in the lower belly, the chest, or the brain; the vertigo; cachexy; peripneumonies; purulent, discoloured urine; violent and inflammatory gripes; abcesses in the viscera of the lower belly and chest; spasms; an affection of the nerves, frequently terminating in convulsions or partial palsies; and those glandular and painful swellings in the lower jaw, the forerunners of that yellow, green, and bloody matter, discharged from the nostrils, which are soon afterwards corroded by deep and virulent ulcers, attended by the anginis, or chronic cough, terminated by fever, the glanders, a marasmus, and death.

Upon dissecting the bodies of horses, &c. which have died in the above diseased state, originating from the ichorous, watery malady, called the grease, I have in general found the whole lean and emaciated; the viscera of the lower belly dry and full of obstructions, more especially the mesentery and pancreas; the liver schirrous and rotten; much hard excrement in the great intestines; the small guts contracted, and frequently containing a number of long, round, whitish worms; the stomach corroded by bots and maw-worms; the lungs diseased, and more or less covered with tubercles filled with a matter resembling soft chalk; the pituitary membrane relaxed, spongy, and covered with yellow, fœtid mucus; the frontal and maxillary sinuses loaded with the same purulent matter. And though these appearances are found in bodies which are destroyed by the farcy, glanders, and other chronic diseases, yet I have uniformly found them in those falling by the grease: the skin of the limb affected has been much thicker than

in

in its healthy state, loose and spongy, perforated in several places; the cellular texture of it completely choaked up, having the appearance of hogs' skin; very hard, and adhering to the sheaths of the tendons; full of a yellow matter, more or or less fœtid and thick; the blood-vessels varieous, and much dilated; and, when the disease has been of long standing, I have observed the yellow pus about the skin to be more thick and fœtid, the bony substances to be softened and enlarged, and those of the pastern and coronet affected with exostosis, and the lateral cartilages of the bone of the foot inclining to ossification.

The causes of this dangerous and most noisome disease are either internal or external. The former arise, first, from the nature of the ground whereon the horse, &c. is bred and feeds; and therefore the Dutch, Flemish, German, and English horses, are more disposed thereto than those who pasture in dry, elevated countries, where this malady is scarce ever to be heard of or found.

found. In general, horses of the abovementioned countries, whose legs are loaded with hair, of a lax and phlegmatic habit of body, who have been bred and brought up in rich and marshy grounds, are more than ordinarily subject to it. I shall now proceed to the other internal causes: the disorders called the strangles, vives, &c. not properly treated and cured, but checked and repelled into the habit; inflammatory and cutaneous eruptions repelled and checked; the negligent treatment of brood mares on the reflux of the milk into the blood, upon the death or weaning her colt; foul and bad nourishment; excessive labour; long and injudicious use of sudorifics, and other relaxing and resolving medicines; super-purgations; frequent and injudicious bleedings; obesity; want of regular exercise; verminous affections; the cachexy, dropsy, &c. &c. in a word, whatever tends to destroy, or too much relax, the texture of the solids, or to impoverish or stagnate the fluids.

The

The external causes are as numerous. Whatever suddenly checks perspiration; either by the change of weather from hot to cold; remaining, during the winter nights, in rain or snow; washing the legs in cold well water, while the animal is in a sweat from hard work; confined, narrow, and damp, or wet stables, where the air has not an active and free circulation, too many animals crouded into them; standing in litter saturated with their urine; the indolence, the filthiness, and the want of attention to their bellies, chest, legs, pasterns, coronets, and feet, whereby the gravel, dirt, mud, dust, or sweat, acquired by labour, is suffered to remain and accumulate; want of due currying and dressing; clipping the hair off the legs and pasterns, close to the skin, in the winter, or what is still worse, plucking it out by the roots; excoriations in the pasterns; blows; over-reach cuts; quitters; unskilful blisterings or firings. Grains, with which dray, and other hard-working horses in and about London, are fed, is very productive of this malady;

more especially where proper treatment and attention,both to cleanliness and medicinal correctors, are not scrupulously adhered to.

This disease is incident to both sexes, and to all ages; nevertheless, mares and geldings seem to be more subject to it than the entire horse; but when the latter is diseased, it proves violent and obstinate. The cure is more difficult in youth and old age, than in the middle of the animal's life. I have observed in young horses a greater degree of inflammation, tension of the fibres, and of pain, than in old ones; arising, I conceive, from the want of elasticity in the solids, and a tendency to a general relaxed state, either from the hard labour they have before performed, or the debility attending the approach of old age, or from both. I have also observed, that a gross-habited animal, whose action is listless and heavy, who inclines to sleep standing, instead of recumbent in his stall, who is large headed, with a sunken eye, and who is greedy

greedy after water, of which (if he is not checked, he will drink inordinately) is more subject to the grease than the one of a contrary definition. It is more prevalent in winter and spring, than in summer or autumn; in great and close-built towns, than in the country. It is certainly enzootic in Paris, London, Bristol, Amsterdam, and such cities; where most of the causes abovementioned abound: its ravages there are constant and unremitting; spreading itself more in wet, than in dry and severe frosty weather.

Having proceeded thus far, I shall now enter upon the

C U R E:

Of which great hopes may be entertained when the animal is young; of an active, good habit, and the malady external.

If the subject is plethoric (too full of blood, &c.) the disease not of long standing, yet attended with

acrimony, pain, and lameness; begin by bleeding; lessen the quantity of his diet, or rather put him upon a judicious regimen of the mash kind; give him luke-warm blanched water, and nitre, made palatable with honey, or a solution of gum arabic; inject a warm clyster of the decoction of bran, or of mallow-roots; cut off the hair, and then cleanse the parts affected with that argillaceous clay called by the English fullers' earth, finely powdered, and beat into a soft paste with a small quantity of Venice turpentine, hogs' lard, and and the lees of red wine or the grounds of strong beer; put this paste pretty thick, in the form of a cataplasm, upon the sores, so that the whole of the diseased part is well covered with it; let it be secured first by a thick coat of tow, and then by proper rollers, and remain upon the limb at least twenty-four hours; when this dressing is taken off, wash the sores with great care and tenderness, quite clean, with warm milk and water; then apply the turnip poultice, into which put a proper quantity of the extracted juice of saffron and the juice

of

of pounded house-leek: thus continue till you find the running becomes less virulent, and of a more laudable quality; this may generally be effected in a short time; in which case you may indulge the patient with some solid food, and may begin to use the vegetable mineral liquor made warm, but without spirit, to the sores: moderate exercise may also be used, and a smart purge or diuretic given; I prefer the purge first, and that followed by a diuretic. In a day or two, if the sores put on a healthy appearance, and the offensive smell, and ichorous discharge, considerably abate; the vegetable mineral water may be made somewhat stronger;* and assisted by hungary, or double distilled lavender water, or even brandy; but I prefer the use of brandy whey.† Still continue the beforementioned turnip poultice; repeat the purge or diuretic at least once in ten days for three weeks; and lastly, foment the legs all over by

* By an addition of the extract of saturn.

† Thus made, take of milk one part, of water one part: let them boil, then add of brandy till it is turned quite clear.

by flannels dipped in decoction of camomile, alder leaves, or alder bark, rosemary, red rose leaves, and colts-foot leaves. Rowelling in the belly; as also setons at the chest, or upon the inside of the thigh, have been sometimes used about a week from the beginning of this mode of treatment, and with no small success. Let a necklace* be applied to the horse's neck as early as possible, to prevent him from biting his legs or tearing off the dressings. At this period, if the symptoms are very favourable, you may restore the animal to his usual labour; taking away the poultice; but carefully guarding the sores with tow, wetted in the goulard water, and secured upon the part by a cloth or soft leather; and lastly, by tow dipped in the aloetic tincture of myrrh, instead of goulard water, and secured upon the leg as beforementioned. If a stiffness of the joints, or lameness, arising from obstructions, &c. should remain, let them be well rubbed with warm flannels several times a day; but so as not to

* Sold at all sadlers' shops: it is called a horse necklace.

to excoriate the skin. If the subject is old, and this method does not remove it, let the part be fired, and the animal turned out after a proper time. And here let me caution every one against the use of those astringents and repellents, composed of mineral, vitriolic, nitrous, or aluminous ingredients, so much in vogue with common horse doctors; they are sure to produce the evils here before specified; by their drying qualities they repel the humour and throw it back into the habit; thereby vitiating not only the solids, but the fluids: and though the incautious may be amused by empirics with the assurance of a cure; yet but too many have soon found, to their mortification, the disease return, either with a double degree of violence, or make its appearance in a more formidable shape.

I have at times found that purges too much fatigue. I then substitued diuretics or sudorifics: sometimes the milder mode of aperitives; such as the bolus of the powder of the woods; boluses of

of the powder of gentian, elecampane, and flour of sulphur; preparations of steel or of antimony, or the resins made up with liquorice powder, wheat flour, treacle or honey, into balls; and at times, but with great circumspection, mercurials. If, however, a small drain or running remains after all, do not dry it up by violent applications: it will assist Nature till she recovers her texture and her regular functions; in which she must be aided by great cleanliness and good care in the groom. In order to cure rat-tails, mallenders, and sallenders, frequent dressings, made of burgundy pitch, common frankincense, tar, diachylon, and quicksilver rubbed well down with Venice turpentine, must be applied. Thus also dress the deep chaps or furrows in the pasterns and round the coronet; first clearing them well from dirt, &c. with soft linen, or tow; but if the lips of the chaps appear livid, lay into them some pledgets of tow well soaked in the aloectic tincture of myrrh for a day or two, and then apply the above burgundy pitch cataplasm. In case of trouble-

troublesome warts round the foot, cut them off with a bistoury, and apply a styptic, such as the vitriolic acid, &c. When the bleeding is perfectly staunched, touch the roots of the excrescence with the actual cautery, or the lunar caustic, with the butter of antimony, or the solution of arsenic, &c. When the escar sluffs off, let the wound, if large and very sore, be dressed with the Burgundy pitch cataplasm; but if small, and disposed to heal, then with a plaister of drying diachylon and cerate only; repeat these caustics and dressings as often as occasion requires: the nitrous acid in which corrosive sublimate has been dissolved, and the concentrated mineral acid, prove, either of them, very powerful applications in these cases; but great attention must be given to prevent the inflammation at times raised by the use of them.

If the greasy running humour has, from its virulence, softened the horny texture of the hoof or of the heels or frog, so as to cause the appearance of approaching excrescences

called fics, &c. let the animal be unshod, cut down the quarters, and the heels of the foot, quite flat, and put on the shorter spectacle shoe,* so that the frog may bear upon the ground as he walks. In this stage of the case, so far as relates to this particular part of the malady, I have known the ægyptiacum alone frequently perform a cure; but it is more certain, if the Burgundy pitch cataplasm is used at intervals.

Great care must be taken not to continue the use of the relaxing system too long, lest it weaken the texture and functions of the skin, promote the growth of warts, augment the putrid diathesis, and bring on a nervous hectic, &c.

If, while pursuing the foregoing methods, an unexpected suppression or stoppage of the humour should take place, whereby lameness, obstruction, and pain, ensues in the limb, together with a loss of appetite, dislike of food, dulness, trembling, &c. then

* No. 7, plate 2, page 199, Lectures.

then it may be feared the humour has reverted from the external to the internal parts of the body; and every effort must be used to bring back the refluent humour to the skin, by immersing the animal in a bath, either of simple water, or medically prepared with herbs or salt, and properly heated;* frictions with brushes, hair-cloth, and flannel, all over the body, both when in and out of it; aromatic and supporting drinks† administered warm on his leaving the bath; and the constant use of the Burgundy pitch cataplasm to the limb: but if, instead of obtaining a running from it, a tumour or abcess should form in the flesh, encourage it by a plaister of the warm gums, and every other skilful means; these tumours being almost always critical, they will

* In addition to this observation on bathing I beg leave to suggest, that much benefit would arise to animals in various diseases if they could be assisted by the operation of a sweating-room.

† By these I mean that excellent preparation and compounded tincture of the Jesuits' Bark, prepared by an eminent English physician, Dr. Huxham, given in red wine either plain or mulled with spices; cordial-drinks, either of simple wine, or of the infusion of such herbs and roots as do not by their eroding quality, inflame the stomach and intestines.

soon suppurate, and bring about a radical cure. Beware of precipitancy, and cautiously avoid every obstruction to the indications of nature: give her time, and your attention will commonly be crowned with success.

Before I conclude I beg permission to observe, that if the grease is not the forerunner, but proceeding from worms, cachexy, farcy, &c. these disorders must be previously and specifically attended to, and their cure attempted; for, as in these cases the grease is only symptomatic, it generally yields to the same medicament, and gradually disappears as the cure of the original malady gains ground.

Having asserted at the beginning of this treatise, that the grease is at times infectious, and at other times contagious; permit me in this place to elucidate this position, by two remarkable instances in the memory of every one. I have premised, that ill-constructed, narrow, wet, or damp

stables,

stables, very much contribute to render this disease infectious. To prove which I lay before you the case of some cavalry which came to Lyons the year before last.* In their route they were under the necessity of stopping at Chalons † and Macon. In the latter town, a muleteer, whose mules had been long and severely afflicted with this disease, was obliged, through necessity, to admit into his stables too large a number of the dragoon horses. The building was little better than a hovel; narrow, confined, and very damp from its being in a bottom. The serjeant farrier, not suspecting the fatal consequences which ensued, suffered these horses to remain thus crouded together in this stable during their stay in the town, separated from the mules by a hand-rail only. On their quitting Macon some slight symptoms of the grease appeared. The usual treatment ment followed; but such was the virulence of it, that not one horse which had stood in the muleteer's

* About the year 1770.

† Sur Saone.

teer's stable, nor the horses which afterwards were stalled with them at Lyons, escaped it: and to so alarming a height did it extend, that we were obliged to draft every diseased animal from the troop, and send him to the Montpellier hospital, before its ravages could be stopped.

Thus much for infection. I shall now state as remarkable an instance of contagion. By the long and heavy rains which fell the latter end of last summer in the district of Lyons,* after a long continuance of dry and sultry weather, the pastures were abundantly saturated with wet; so that in many places large sheets of stagnate water were formed. These rains, being followed by a return of hot weather, accompanied by a soft southerly wind, the exhalation soon became so noxious as to overload the air of these low grounds. The harvest and vintage had been secured before the setting in of the rain; the people, rejoicing at the change, had incautiously turned their cattle

* Commonly called the Lyonois.

cattle to graze without taking them under cover at night. The object of the veterinary art being my province alone, I shall confine myself to the disease I am treating of, without saying any thing of the putrid malady, which, from the cause abovementioned, (at that time) so destructively raged amongst the human species. I therefore proceed to remind you, that the principal and governing disease that afflicted the horses, mules &c. was the grease, rapid in its progress, and fatal in its effect. The whole atmosphere seemed tinged with a putrid vapour: men fell by hundreds, and animals by thousands; the ruminating kind were not exempt from it; the contagion spread even to and over the mountainous parts of the province: nor did this column of mischief abate its virulent violence till dispersed and destroyed by the purer atmosphere of the Mediterranean Sea, and by a shift of wind, a purer and more elastic air succeeded on land.*

To

* See page 19 Medical Observations.

To conclude, a most exact and unremitting attention is necessary to great cleanliness. Vinegar at proper intervals should be sprinkled, not only in the stable of animals labouring under this and similar diseases, but the mangers and racks should also be frequently washed clean, from the mucus and slaver that adheres to them, with hot water acidulated by vinegar: fresh and pure air should have a well-regulated constant inlet and course throughout the building; very much of the health and recovery of all animals depending upon the succession of oxygen, or pure atmospherical fluid in their stables: exercise, and good dressings with the curry-comb, brushes, hair-cloth, and flannels should never be neglected; nor will it be amiss, if every now and then the inside of the thighs as high as the sheath, and the inside of the fore legs as high as the chest and on each side of it, was to be bathed with water also acidulated with vinegar.

EXPERIMENTS AND OBSERVATIONS

MADE UPON

GLANDERED HORSES,

With intent to elucidate the Rise and Progress of this Disease, in order to discover the proper Treatment of it.

THE Glanders, or that obstruction and corrosion of the lymphatic ducts and fluids in animals who do not cleave the hoof, is a disease at present deemed incurable. Mons. La Fosse is an author much quoted, because highly and deservedly celebrated for his minute and laborious researches into the cause of this disease. He has been at the trouble of dividing

it into six classes; and of endeavouring to support his reasoning upon them all, sometimes by experiment, and sometimes by analogy: yet I fear he has left us but little to rely on; we are still miserably ignorant as to the cause and nature of this specific virulence, which seems to have baffled all endeavours up to the present moment; it frequently deceives us by putting on appearances and holding out symptoms novel and seducing. The practitioner, thus allured, is buoyed up with hopes of a discovery; he investigates, he applies, he thinks he obtains such lights as lead to elucidation and certainty; but it is all illusion; Hope stands aghast at the disappointment; nor can he fix the proteus till it yields to its more formidable rival Death.

I shall, notwithstanding these discouragements, endeavour to trace the nature of the virus, which has thus baffled all medical application. I shall, at the same time, shew its material difference to the strangles and other diseases of the glands.

Does

Does the virus in the glanders indiscriminately attack all horses exposed to its contact? It does, some few excepted; but in different degrees of virulence, according to their age, food, condition, labour, or local situation: Young horses are more subject to its attack, from the delicacy of their organs; those also who in the stable are fed upon too succulent plants, or herbs full of mucilage, are more liable to it, than they who eat dry food, or graze. Fat horses catch the disease much sooner than lean ones; and the horse at rest more easily than one who is daily at work. Horses who are at large in pastures and fields are seldom attacked; but those which are confined in low and damp stables without a free air, often fall victims to this disease.

Is the infection received by the pores of the skin, or by the breath, the food, or the drink? Experience has proved, that it may be received by one animal rubbing against another, by the breath, and by a sound horse eating the slavered

food of a diseased one; but not by water, unless the virus is swallowed with it; neither by inoculating the body with the morbific matter. Diseased stables, foul racks and mangers, and litter upon which a tainted horse has lain, will to a certainty infect a sound animal, if unfortunately he is put into such a situation at the time the disease is active upon the thing infected.

Does the virus in the glanders communicate itself more readily in one season than another? The infection is sooner caught, and the ravages of it more rapid, during the heat of summer, than in the winter; and it is more contagious in the southern countries than in the northern ones.

Does this virus, when working its effects within, and before it appears by a running from the nostrils, produce any visible change in the animal œconomy? No difference has as yet been observed in the animal: the pulse does not vary;

vary; the secretions are regular; the animal does not appear to be depressed; he does not cough; his breathing is free; he, for the most part, preserves his appetite, liveliness, and good condition. When the pituitary membrane begins to be inflamed, and the running appears, no other symptoms of the disease are yet observable; it is only when the virus begins to affect the membranes, the bones, the lymph or crasis of the blood, that the animal's decline is visible.

Is the duration of the disease of any fixed or determined length? No: the horse that labours under it may live from three months to one, two, or three years, and even longer. It is at the same time obvious, that the animal who receives the infection in its last stage of malignancy, will live less time than the one who has caught the disease from a subject in which the virus was less active, and whose constitution was stronger. There are horses, but very few, who can resist the infection altogether.

Are

Are there different sorts of the glanders, as a celebrated author * has asserted? I believe that there only exists one sort, which operates according to its local situation, and the habit of the subject on which it acts; our knowledge in point of natural history extends no farther. The classes, genera, divisions, and sub-divisions of diseases, have occasioned the admission of many errors into medicine relative to human bodies: we should therefore endeavour to preserve that part of the art which respects horses, free from all such errors; which can only be done by admitting as true, that which has been confirmed by experiment; throwing aside whatever is not thus supported by proof, and avoiding all hypothetical systems.

Lastly, is the real seat of disease known? Some place it in the pituitary membrane; some, in the lungs; some, in the lymph; and some, in the external parts of the body. I shall not undertake

* M. La Fosse.

take to reconcile these different opinions; I will only observe, that if the glanders is caught by the breath or food, I do not conceive why it should stop in its progress at the pituitary membrane, without going down the windpipe and the bronchias; nor do I see any reason why it should not fix upon the lungs. If the existence of the absorbent vessels cannot be denied, can we prove, that the virus deposited on the surface of the pituitary membrane, of the windpipe, or on the bronchias, does not penetrate into the circulation? And if it penetrates thither (as it must, agreeable to the principles of sound philosophy) are we to suppose that it passes through the whole vascular system, without vitiating more or less, the blood and humours in its course, only to obtain a lodgment at the orifices of the excretory vessels of the abovementioned membrane, and corrupt the mucilaginous liquor that flows from thence? It is much more reasonable to conclude, that the virus, circulating through the mass of humours, is particularly affecting and injurious to the lymph; that

that Nature provides it a passage through the pituitary membrane; that the morbific humour flowing upon it, irritates, inflames, and corrodes, producing ulcers: consequently, we should consider this membrane as a proper emunctory destined to throw off the morbific matter, and not as the seat of the disease. If this opinion is well founded, topical or local remedies are insufficient; they go to attack only the effect, and not the cause. They become still more inadequate, if the lymph or the lungs are affected; which I have often found to be the case.

Before I proceed to give an account of the symptoms which indicate the glanders, it will be necessary to give a short account of the anatomy of the parts which appear to be more immediately affected by it; because, without a knowledge of the situation and structure of those parts, it is impossible to distinguish between diseases that are accompanied with many outward symptoms exactly

actly similar; the practitioner who has not this knowledge, must be constantly liable to form an erroneous opinion of the disease of the animal, which thereby often falls a victim to his ignorance.

A short Description of the Nose and Pituitary Membrane.

THE great cavity of the nose is formed by the union of the maxillary or cheek bones, and the bones of the nose, properly so called. This cavity is divided by a cartilaginous partition (which ossifies in its upper part in old horses) separating the internal parts into two equal cavities, in which are observed three sinuses, namely, the frontal, the maxillary, and the zygomatic sinuses, and four protuberances, like horns, two on each side, called upper and under horns. In these different cavities the infected mucus and other matter is collected, in the glanders, the strangles, and such diseases. It is indispensably necessary,

therefore, to have a perfect knowledge of the structure and situation of these different sinuses, in order to ascertain, at first sight, on what part of the surface the operation of trepanning, if necessary, ought to be performed without risk of breaking the partitions that divide them.

The inward cavities of the nose, the sinuses and horns, are lined in their whole extent by the pituitary membrane. This membrane is of considerable thickness upon the cartilaginous partition, but is thinner over the horns and within the sinuses. Its texture is composed of nerves, arteries, veins, and excretory vessels, which proceed from a multitude of glands spread through its whole substance. These nerves are branches of the olfactory nerves, and constitute the organs of smelling. The arterial vessels proceed from a branch of the inward upper carotid artery; and the veinous vessels unite together in order to flow into the jugular vein. In its natural state this membrane is constantly moistened and lubricated

lubricated by a mucilaginous liquor, which defends it against too strong an impression of the air, and preserves it from exication, and a consequent inflammation.

The want of fluidity in the blood and lymph occasions the obstruction of the vessels and glands of the pituitary membrane.

The irritation of the nerves, by producing a contraction of the vessels, contributes to this obstruction.

The relaxation of the texture of the membrane, by depriving the vessels of their tone, occasions a stoppage of the fluid, and produces obstruction.

The inflammation that follows the obstruction is always in proportion to the producing cause. If the cause be local, the inflammation, in many cases, may end by a resolution of the obstructed humours. If it be the effect of a remoter cause,

it is more difficult to stop it, and to prevent suppuration of the membrane, especially where the ulcers are become of a cancerous nature.

Of the Humour running through the Nostrils.

The simple inflammation of the pituitary membrane produces a discharge of a limpid matter, sometimes slimy, always transparent in the beginning. If the inflammation increases, the stagnated humours become corrupt, and turn to a thick white pus.

If it lodges and remains in the sinuses, it becomes sharp and corrosive, attacks the bony substance, lacerates the blood-vessels, and this mixed virus produces a discharge of a yellowish, green, or bloody appearance.

The flow of matter from the nostrils proceeds from various causes; which it is very material to distin-

distinguish, in order not to confound the glanders with other diseases.

A horse in the strangles commonly discharges from the nose a slimy, whitish matter, tinged with yellow (according to the degree of the disorder) resembling that which appears in the glanders. If the strangles are of a bad kind, and the inflammation is carried to its last stage, the matter becomes purulent, sometimes corroding the pituitary membrane, and producing ulcers similar in appearance to those observed in the glanders.

If the strangles are not thoroughly cured, a metastasis frequently takes place, the humour fixes itself on the lungs and forms an abcess.

A horse afflicted with a violent cold* commonly discharges from the nose a humour more or less fluid in the beginning, but which acquires

a

* Morfondure.

a consistency like that of the glanders, so that it is often mistaken for it.

The horse seized with a chest-foundering* commonly discharges at the nose a humour exactly similar to that of the glanders, being viscous, purulent, and sometimes bloody, according to the progress and stages of the disease.

The horse in a confirmed consumption† commonly discharges at the nose a purulent humour, such as that in the glanders. If the matter that comes from the lungs is very sharp, it produces on the pituitary membrane foul and corroded ulcers, of the same nature with those observed in the glanders.

The consumption, being always a consequence of some other disease, is generally attended with a great inflammation in the pleura and the lungs, terminating

* Courbature.

† Pulmonie.

terminating in a suppuration of those parts, which is ejected at the nostrils.

The virus of the grease and farcy also occasions consumptions, by fixing itself upon the lungs, &c. When the running at the nose arises from either of these causes, it is always fatal. I have even seen it, in the hospitals of the veterinary school at Lyons, become contagious.

Analogy of the Symptoms of the Glanders to the above-mentioned Diseases.

When a horse is taken with the glanders, the first external symptom that has yet been discovered is a discharge at the nose, of a limpid, slimy humour. As the disease encreases, this humour changes its consistency and colour; it appears more thick, and tinged with yellow, green, or bloody ichor, &c. such as attends the above diseases: consequently the *colour* of the matter cannot

cannot be looked upon as a certain characteristic of the glanders, since it is common to these I have just mentioned. I shall therefore endeavour to point out the signs that distinguish those disorders, as well as the symptoms which are *peculiar* to the glanders: And first of the strangles.---

All horses are by nature exposed to the strangles. They are commonly affected with it from two to five years old. A quickened pulse, heaviness, dislike to food, and a cough, are the first symptoms. Soon after, a swelling appears upon the glands of the under jaw, more or less in extent, and more or less inflamed. The parotid, maxillary, and salival glands, are equally swelled. The lymphatic glands are but seldom so.

The morfondure, the sleepy staggers, and lethargy, are the consequences of a checked perspiration, and particularly in the head. In this case the humours flow back to the inward parts, and direct their course towards the pituitary membrane.

The

The symptoms that indicate it are, heat and dryness of the skin; the pulse, felt at the temporal artery and at the outward maxillary, is tight and deep; the animal coughs, is dull, and disinclined to food.

The courbature, or chest-foundering, shews itself in the horse by violent fever, the head hanging down, an absolute distaste of food, a difficulty in breathing, a frequent cough, &c.

The Pulmonie, or consumption, begins with a hectic and cough which increases insensibly; the horse has some appetite till the disease has come to a certain period, when he wastes rapidly, and death soon follows.

Some Symptoms peculiar to the Glanders.

It is remarkable that the virus in most cases of the glanders, does not produce in the begin-

ning any sensible alteration in the animal œconomy: the horse taken with it, has neither fever, dulness, or distaste to food; the appetite is good, the digestion easy, and the secretions regular; it is precisely this apparent state of health which in part confirms the existence of the glanders when it is attended by the discharge from the nostrils only. The obstruction of the lymphatic glands is a certain token of the virus of the glanders; but in order to ascertain that fact, it is necessary to know the anatomical structure of those organs, their situation, functions, and connection with the pituitary membrane.

The lymphatic glands of which I am speaking are situated under the tongue, one on each side, within the branches of the under jaw. They receive all the lymphatic vessels that issue from the pituitary membrane, and give rise to a channel, issuing out of them, which reaches the wind-pipe; behind this it descends to the chest, and from thence

thence it empties itself in the left subclavian vein, near the insertion of the thorachic duct. From this short description it may easily be seen, that the glands alluded to must of necessity be obstructed, when the pituitary membrane is ulcerated by the malignancy of the virus; because then the lymph acquires a viscous and thick quality, which renders the circulation more slow, and occasions its obstruction in the glandulous body. Perhaps also the virus contains some noxious and active effluvia, which completes the condensation of the humours. The hardness and insensibility of the glands in this disease in some measure sanctions this idea.

When the discharge is only through one nostril, the gland of that side is alone obstructed; that on the opposite side is not, because the lymphatic vessels which correspond have not yet been attacked by the matter, and the lymph has not yet been completely infected by the virus. The obstruction of the lymphatic glands, one on

or on both sides, is not therefore an unequivocal symptom of the glanders. These glands may be obstructed in other diseases, such as the malignant strangles, &c. beforementioned, wherein the matter acquires a bad quality and corrodes the membrane; that which comes from the lungs in consumptions, being sharp and corrosive, produces the same effect; but in these cases we may guard against error, by compressing these glands between our fingers: if, upon so doing, an elastic repulsion is felt from the centre of the glandulous body, and the animal shews sensibility of pain, then it is not the glanders; in this disease they are hard and quite insensible, as I have already hinted. Without long experience, and a knowledge of the anatomy of these parts, it is impossible for any one to perceive this difference; although the life of the animal very often depends upon it.

I shall here close my observations, confining them to this short sketch; my intention being, rather

rather to give an account of some experiments I have made, than to offer an elaborate dissertation on the tubject.

Some Experiments made by me at the Veterinary School at Lyons, whilst I was Professor there.

THE inhabitants of Lyons are obliged by law, to give information to the school, of all horses affected with the glanders, in that city and the adjoining country; I had consequently daily opportunities of making new experiments; being at liberty either to kill or preserve the glandered horses, for the instruction of the pupils. It would be unnecessary for me to relate minutely all the trials I made; but I shall give an account of some, which from their effects I more attentively observed, the journals of which I have kept by me.

EXPERI-

EXPERIMENT I.

THREE horses with the confirmed, ulcerated glanders, discharging copiously at the nostrils, one seven years old, another eight, and a third eleven, were all put in the same stable, and under the following course of medicines.

1st. They were bled at the jugular vein.

2dly. An injection was thrown up their nostils, of lime-water, in which a sufficient quantity of wine vinegar and salt had been mixed.

3dly. Their common food was reduced one third, and they had white water to drink.

4thly. To each was administered six drams of kermes mineral, and three drams of camphire, made into a bolus with flour and honey. The same injection as above was repeated twice a day.

The

The bolus was continued on the 4th, 5th, 6th, and 7th days.

On the 8th day I caused them to swallow in two doses (one in the morning fasting, and the other at night) a quart of red wine, saturated with regulus of antimony. One of the horses began to purge on the 9th day, at 5 o'clock in the morning, and it was over by 3 o'clock in the afternoon; the second had frequent provocations without voiding at all; the third did not seem to be any way moved by the medicine. On the same day they were injected with spirit of wine, and water in which copperas and gall-nuts had been infused. On the 10th the injection was repeated again. On the same day they took the bolus with kermes, camphire, and honey.

On the 11th, no medicine whatever was given.

On the 12th, the running at the nose was somewhat abated in all three; but the pituitary membrane

brane appeared to be more inflamed; the bolus was given.

On the 13th, their food was reduced to half the quantity, the white water was given them in abundance, and an emollient clyster administered to each of them.

On the 14th, the quart of red wine saturated with regulus of antimony.

On the 15th, one of the horses evacuated tolerably well, and the other two very little.

On the 16th, I repeated the injection as above.

17th, The same injection again.

18, 19, 20th, The injection again, and the bolus of kermes, camphire, and honey. The discharge was much diminished in the first and second horses; but still abundant in the third, through one

one of the nostrils only. The lymphatic glands were still in the same condition.

21st, 22d, 23d, 24th, The Bolus and injections were continued.

On inspection of the urine and dung, there was a strong indication of great heat in the blood; consequently I suspended the course of medicines, till the 30th day. In the interval they had plenty of white water to drink.

On the 31st the urine and stools appeared to be in a healthy, natural state.

32d, The bolus was continued. Injections were made with allum and white vitriol, mixed together over the fire, afterwards reduced to powder, and dissolved in lime-water; to which was added a sufficient quantity of vinegar.

33d, 34th, The injection was repeated twice a day, and the bolus continued.

35th, The running disappeared in one of the horses.

40th, The running ceased in the second. The bolus and injections were continued every other day only. The general treatment was continued with the third, to the 55th day. The running ceased in him also after two months, from the first beginning. A stop was now put to all medicines. The obstruction of the glands was removed also in one of the horses, and remained very little discernible in the other two. At this time, thinking it to be a secondary effect of the disease, and supposing that the resolution was only in the conglobated glands, I imagined that time would complete the cure. Every thing seemed to promise it until the 72d day, when the running appeared anew in one; it shewed itself at the end of three weeks in the second; and near three months elapsed before it returned in the third horse; in all of them it was more violent than ever. The two

former

former were first killed for investigation. I found the frontal and maxillary sinuses filled with purulent matter in both; the pituitary membrane was also ulcerated in many places; from whence I inferred, that the injections had not penetrated into the superior cavities. On inspection, the back part of the mouth, the windpipe, the bronchias, and the lungs, discovered no mark of inflammation: all the other parts appeared in their natural state. Tthe third was afterwards killed and opened: I found that the frontal, maxillary, and zygomatic sinuses, contained much bloody matter; the membrane was ulcerated to a great degree; the bones carious in many parts; and the lymphatic gland on the right side was become schirrous; I found in the right lobe of the lungs five vomicas the bigness of a pigeon's egg, or nearly so. No other part seemed to be affected.

EXPERIMENT II.

Two saddle-horses (the one Spanish, the other Navarese; the former nine years old, the latter seven) in the confirmed glanders, were put under the following regimen.

They were restricted to a low diet for two days, and let blood the third. The 4th day they were trepanned; the Spanish horse on the left side, because the running was only there. The operation was performed on both sides the head of the Navarese; the matter being discharged from both his nostrils. After the operation, I injected through the openings a decoction of barley water and honey, to cleanse the ulcers.

The 5th, I used the injection made with lime-water, vinegar, and salt. It was repeated twice.

The

The 6th, I gave to each four quarts of the second lime-water, sweetened with honey. This drink, and the injections, were continued to the 15th day.

The 16th, the running had diminished one half; but the obstruction of the lymphatic glands was augmented.

The 17th, the running became more abundant; but the matter seemed to be of a better sort. The lime-water was continued to the 30th, in the proportion of six quarts a day. The horses now becoming dull, and disgusted with their food, I suspended the course of medicines till the 35th day.

The 36th, two quarts a day of a strong infusion of camomile was given to each. This was continued to the 42d. The dulness disappeared; their appetite returned; but the discharge, as well as the obstruction of the glands, continued the same.

The 43d, in the morning, I threw up injections with honeyed barley water; in the afternoon, a second injection with allum, white vitriol, lime-water, and vinegar, was administered. This was continued to the 50th day. At that time the matter was whitish, and in small quantity; but the Spanish horse now discharged pus at both nostrils.

From the 51st to the 60th, injections were given, made with spirit of wine, copperas, and gall-nuts.

The 66th, the running had almost disappeared; both horses were in good spirits, and eat and drank as usual. They were walked out an hour every day.

The Spanish horse soon seemed to be well, and continued so about amonth; after which time the running appeared again; the matter became bloody and fœtid. Convinced now of the inefficacy of remedies

medies to him, he was killed. On opening the nose, I observed the membrane was corroded, particularly on the right side; the superior horn was almost destroyed, and the lachrymal duct choaked up with purulent matter. The dissection of the brain offered nothing particular. The viscera of the abdomen was sound. A small portion of the interlobulary texture of the lungs had abcesses; but the matter had not penetrated into the bronchias. The lymphatic glands contained a concreted humour.

The Navarese preserved (to all appearance) perfect health from the beginning of June to the end of August in the same year. At that period the running took place again; and in the space of three weeks the disease increased to such a degree, that I was obliged to kill the animal. On opening, I observed that the pituitary membrane was ulcerated in a great extent of its surface; the cartilaginous partition was attacked by the matter; the sinuses contained very little of it. All the intestines appeared sound.

EXPERIMENT III.

A large cart-horse, ten years old, having the lymphatic gland on the right side much obstructed, hard, and insensible, the membrane ulcerated, with a discharge of yellowish and fœtid matter, was put upon the following course.

1st, The animal was reduced to bran and white water for food; and was bled twice in the space of two days. On the 3d I performed the operation of the trepan in two places; and injected into the nazal foveas and sinuses, a strong decoction of wormwood. The injection was continued for six days with the addition of honey.

The 10th, the injection was made with the second lime-water. It was continued to the 15th.

The 16th, 3 drams of Ethiops mineral, incorporated with honey, were given. The injections

jections were made with the first lime-water, and continued to the 24th, as also the bolus, with an addition of a dram of Æthiops mineral. At that period the running was diminished one half, and the matter had become more laudable. I continued the same course of medicine to the 40th.

The 41st, the running was almost suppressed, and the size of the gland considerably diminished; the injections and the bolus were continued to the 50th, when the running ceased. The injection was now repeated only every other day; the bolus was reduced to two drams.

The 61st, I discontinued all medicine, and soon after the horse was gradually brought to his usual quantity of food. He was placed in another stable; his dress was changed; he was looked after by another groom, and walked out everyday in an enclosed place; during which time his former stable was well washed, and fumigated with brimstone, gunpowder, spirit of vitriol, and juniper berries.

All these precautions, however, did not prevent the running at the nose from returning at the end of three weeks: the animal was then killed. On opening him, the nostrils exhibited the membrane ulcerated in three or four places only. One of them, which was broad and deep, had attacked the bony substance. The sinuses contained much yellowish matter, mixed with bloody filaments, produced by the dilaceration of the small vessels. Part of the villous membrane of the stomach was slightly inflamed; the cardiac orifice was a little more so; the inflammation had also reached the slender intestines; the left lobe of the lungs was inflamed, and filled with a black, thick blood: this might be either the consequence of the Æthiops mineral, or of the virus of the glanders.

EXPERIMENT IV.

Two Danish coach-horses, the one seven years old, the other eight: the first was in the confirmed

firmed glanders, with the same disorder, but at that stage which we at present deem its beginning only. They were placed in two separate stables, and put under the following course.

1st, They were kept without hay for some days, and had bran and white water for food.

2dly, They were blooded at the jugular vein; and to each two emollient clysters were given.

3dly, A decoction of mallows, marsh-mallows, pellitory, elder-flowers, and camomile, was injected into the nostrils.

4thly, The horse which was most infected was made to swallow a bolus, composed of four drams of mercury, and as much cream of tartar, incorporated in a sufficient quantity of honey. The other horse took a bolus composed of two drams of precipitate *per se*, or the precipitate of

mercury, incorporated with honey. The injections, clysters, and boluses, were continued to the 20th.

The 21st, the running was much increased in the former; the matter also began to grow brown and bloody at intervals; and the obstruction in the lymphatic glands was enlarged. In the latter, the running was less abundant; the matter was clear and transparent; the glands less hard and voluminous. The same course was followed and adhered to in both till the 30th.

The 31st, the running had stopped in the latter; the course of medicines was continued a week afterwards to him.

The 36th, I performed the operation of trepanning upon the former. The cavities were injected with lime-water; afterwards, the injections were used which I have mentioned in the first and second experiment. I suspended the use of the

the bolus, the evacuations being so great, they made me apprehend a disorder in the stomach.

I continued the injections till the 65th day. The running appeared and disappeared at different times, and at last became constant, and of a bad sort. As the animal fell away rapidly, I thought proper to kill it. On opening the body, nothing particular appeared, except an infinite number of little ulcers on the pituitary membrane. The sinuses contained but little matter. The other horse appeared to be radically cured; which I ascribed to the good habit of the animal's body, the small quantity of the virus, its lesser degree of malignancy, and the short time it was allowed to ravage, rather than to the course of medicines. Besides, in these matters, a single fact cannot establish any thing.

EXPERI-

EXPERIMENT V.

A saddle-horse, about eleven years old, newly attacked, as I was informed, with the glanders, was treated in the following manner.

1st, He was let blood, confined to white water, and had several emollient clysters administered for three days.

2dly, He was treated exactly as the horse which I last mentioned to have been cured; but the success was not the same: for, after three months' perseverence, I was obliged to kill him. On opening, I found the pituitary membrane ulcerated, but nothing else.

EXPERIMENT VI.

A saddle-horse of the Limousin, aged nine years, with the confirmed glanders, which had made

made some progress, was put under the same course of medicines as the preceding one, for ten weeks. At that period the remedies had worked no good effect: the discharge was abundant, bloody, and fœtid; the breathing became extremely laborious: in short, all the signs of death appeared, and the animal shortly expired. On opening, the nostrils exhibited the same appearances which I had observed in other horses; but, in proceeding farther in the dissection of the mouth and wind-pipe, I perceived that the running proceeded in a great degree from the lungs, within which I found a collection of fœtid pus, mixed with the humour of the bronchias, arising from ulcerations, with which that viscera was attacked. I now thought that I had mistaken the real characteristic of the disease, and that the animal had died of a consumption; but, as it was equally possible that the virus in the glanders had produced those effects, I suspended my judgment, waiting by new experiments to elucidate it.

EXPERI-

EXPERIMENT VII.

As the efficacy of Æthiops mineral and periwinkle in the glanders had been much spoken of, I embraced the first opportunity to make trial of the virtue of each.

Three hackney coach-horses, eight, nine, and eleven years old, affected with the glanders nearly in the same degree, were treated in the following manner.

1st, They were all three prepared for evacuation, with white water and emollient clysters; a purge was then given them, composed of one ounce of aloes, two drams of sweet mercury, two ditto of jalap, two ditto of cream of tartar; the whole mixed with honey. The next day they evacuated pretty well.

The

The 3d day, they took one ounce of Æthiops mineral, and one ounce of powder of periwinkle.

The 4th, they were trepanned on one side; the cavities of the head were injected with vulnerary water; the Æthiops mineral, and periwinkle powder was continued to all the three, to the 10th day; and the injection was the same as on the 4th.

The 11th, the purge was administered as before mentioned.

The 12th, they purged very well. The 13th and 14th, all medicine was suspended, except the injection.

The 15th, they returned to the use of Æthiops and periwinkle. The course of medicine was the same till the end of the 24th day.

The 25th and 26th, no medicines were administered; but white water and clysters were

given. At that period the running of matter was diminished in one; but it was increased in the two others.

The 27th, they took the usual medicine.

The 28th, they purged rather too much.

The 29th, they seemed dejected, dull, and disgusted with food. I therefore suspended all operations till the 35th, when I repeated the injections. On the 36th, the appetite came again. On the 37th, the Æthiops, periwinkle, and injection, were continued to the 45th. The 46th and 47th, I left them quiet. The running diminished sensibly in the first; it had even disappeared for three days; but it continued still in the two others. The lymphatic glands were in the same degree of fulness.

The 48th, the medicine was given them; but the jalap was omitted, in order to substitute in its place three drams of nitre.

The

The 49th, one of the three purged very little; the other two not at all. They seemed very dull, nauseated their food, and more changed than usual. I ascribed those symptoms to inflammation in the stomach and intestines, occasioned by the use of the medicines; in consequence of this, I left them quiet till the 58th day. On the 60th, I renewed the use of Æthiops and periwinkle; which was continued to the 70th. At the end of that time, the glanders appeared to me to be incurable in the two last; they therefore were killed. On opening their nostrils, I discovered nothing new: the pituitary membrane was ulcerated, as in most of those I had already opened; the pleura and the lungs seemed to be sensibly inflamed; the inflammation was greater in the villous membrane of the stomach, in the pilorus, and the smaller intestines. The first horse seemed to be in a fair way of recovery: the matter was transparent, and in small quantity; I soon found means to suppress the running altogether, by injections of prime lime-water. The

usual medicines were continued till the 96th. The next day, the Æthiops and periwinkle were discontinued; but the animal was still purged three times in the space of a month. I then returned him to his master, seemingly in very good health; but he sent him back to me at the end of two months, with every appearance of the glanders. I renewed the former treatment for the space of six weeks to no purpose; the animal was then killed and opened. I discovered many cankers in the pituitary membrane; and found that many had been cicatrized by means of the injections. If, as I had reason to think, all those which now appeared were new ones, it proves that the seat of the glanders is not local, but exists generally in the mass of humours.

EXPERIMENT VIII.

FOUR fine cart-horses, having caught the glanders on the road from Nismes to Lyons, were brought

brought to the veterinary school. I put them upon the same treatment as I have just described, without obtaining better success. They were killed at the expiration of two months. The dissection of their bodies furnished nothing deserving of notice.

EXPERIMENT IX.

A Navarese horse, nine years old, in the confirmed glanders, was put under the treatment above-mentioned, but without being trepanned. The second medicine, administered on the 2d day, gave him a cholic, which was followed by a super-purgation. He immediately swallowed an astringent drink, composed of one ounce of diascordium, one ounce of prepared chalk, and two ounces of honey, boiled in three pints of red wine. This drink was repeated four times in twenty-four hours, but without success. The animal died on the 3d day. I discovered, on opening the nose, that the pituitary membrane

was

was ulcerated on the right side only. The zygomatic sinus was filled with whitish and purulent matter. The lungs were slightly inflamed; but the intestines and the stomach were much more so. This last observation proves, that the animal was of a very irritable disposition of body; and that the cathartics had been a real poison to him; as they generally are to all horses, if not administered with the greatest caution.

EXPERIMENT X.

Two horses, the one an English hunter, the other a Neapolitan manage-horse; the first ten years old, the second twelve, having contracted the glanders in the same stable, were submitted to the following treatment.

1st, I caused the hair of both to be shaved, from the neck down to the buttocks, and as low on each side as the middle of the body.

2dly,

2dly, I caused emollient fomentations to be applied all over the body for the space of a week.

3dly, I employed frictions of mercurial ointment over the buttocks, about one ounce at a time; which I continued every other day for twelve days.

4thly, I made four frictions on the rump, by one ounce and a half of ditto every other day.

5thly, I made two frictions on the loins, with the same dose as the preceding one, and in the same interval of time.

The 21st day, the symptoms had not varied.

The 22d the parotids began to swell.

The 23d, the maxillary glands were in the same condition. The frictions were made on the back, from the loins to the withers.

The

The 24th, all the parts of the head were greatly swelled in the Neapolitan, and salivation began to take place.

The 25th, he could not open his jaws; I therefore let him blood twice the same day. I repeatedly injected into his mouth barley water with honey; and I gave him, the same night, a laxative clyster, composed of four ounces of catholicon, dissolved in boiling water. The injections in the mouth were continued every two hours during the night.

The 26th, the same injections, and a purging clyster.

The 27th, 28th, 29th, and 30th, the same treatment was continued; the salivation was abundant; but the stricture in his jaws was taken off on the 28th.

The 31st, the obstruction in the glands began to diminish; and the animal drank water with nitre dissolved in it.

The 32d, the injections, and the nitrated drink, were continued to the 40th.

The 41st, the running at the nostrils had increased; but the fulness of the head, and salivation, were less. The animal was left quiet till the 46th day.

The 47th, I renewed the frictions, in doses of an ounce; they were continued to the 57th.

The 58th, the fulness of the head took place again, and the salivation became copious. I reduced both by the same means I had before employed. The obstruction and salivation were not so considerable in the English horse. After having left them quiet for a month, I perceived that the glanders had increased in malignity. I went on another month, but without success. I then caused the two animals to be killed. The opening of the nose exhibited, in a greater degree, the same ravages I have so often mentioned.

The inside of the mouth was a little inflamed; the excretory ducts of the salivary glands were increased in size.

EXPERIMENT XI.

A charger, nine years old, with a fresh infection, was subjected to the same treatment as the two preceding ones. After the eleventh friction, the fulness of the salivary glands became so considerable, the blood flowed to the head with such impetuosity, that it was impossible for me to prevent the consequences. The animal died within twenty-four hours. It was not opened. Four other horses were subjected, in the course of the same year, to the treatment of mercurial frictions, but without success.

EXPERIMENT XII.

A large draft-horse, seven years old, suspected of having the glanders for six weeks, and which had

had been previously under the care of a common farrier, was brought to the veterinary school, and treated as follows.

1st, He was blooded at the jugular vein, received some emollient clysters, and tasted nothing but white water during the space of twenty-four hours.

2dly, Volatile alkali, or spirit of sal-ammoniac, was given, mixed with an infusion of angelica-root; taking care to keep him well covered in a warm stable. This first dose quickened the circulation, and increased the degree of heat over the whole body, without exciting perspiration. The next day I encreased the dose of alkali two drams; still using the infusion of angelica. The drink was given at six o'clock in the morning; at eight the pulse was high; at ten the perspiration was perceptible; at twelve the sweat was copious, and continued till six o'clock at night. Two emollient clysters were given in the course

of the night. His drink was just coloured with wheat bran. This treatment was observed for the three following weeks. At that period I discontinued the drink for a week; but the clysters were still given. The 25th day, the running had a little diminished; but the lymphatic glands were harder.

The 32d, the running was trifling; the matter began to be transparent.

The 33d, I renewed the use of volatile alkali in the infusion of angelica; which produced only a small perspiration. On the same day, the nostrils were injected with a decoction of centaury, and gentian, to which was added a small quantity of vulnerary-water, and continued till the 44th. During all this time the sweats were sufficiently copious; the urine in small quantity, and of a reddish tint; the excrements hard and dry, in spite of the daily use of emollient clysters and white water. As the animal was much wasted, and

and appeared weak, I left him to himself till the 54th; when the injections were continued, but with lime-water.

The 62d, the running disappeared entirely. The injections were continued for a week; at the end of which the medicines were discontinued. All this time, the cloths which covered the animal were washed and shifted every day; the greatest cleanliness was also observed in every other respect. At the end of a month, he was sent to grass in a low and marshy place; but, after two months, the glanders returned, and he was killed. I had no opportunity of opening him.

EXPERIMENT XIII.

FOUR horses, of various ages, differently diseased with the glanders, were successively treated in the method just described; but without any success. The opening of the bodies presented nothing extraordinary.

EXPERI-

EXPERIMENT XIV.

A large Swiss horse, seven years old, employed in drawing boats on the river Rhone, having the confirmed glanders, was treated as follows.

1st, He was dieted for 24 hours, after which I made him take a dose, composed of six drams of aloes, two drams of jalap, one dram of sweet mercury, five drams of nitre, incorporated in a sufficient quantity of honey. Two days after the purge, I made an incision in the chest; in which I introduced half an ounce of corrosive sublimate, which produced a temporary choaking. The running (of a reddish serosity, which commonly takes place after such an operation) became very abundant in a few days, because the horse was fat, and full of humours.

2dly, I caused him to swallow of liver of sulphur half an ounce, incorporated with two ounces of

of honey; injections of lime-water were administered to him twice every day.

This treatment was adhered to for the space of six weeks; at which time the running had almost ceased. It seemed, that the evacuation of the humour by the chest had occasioned a sort of derivation, or revulsion. In place of the liver of sulphur, a bolus of balsam of turpentined sulphur was now given. It was continued for a month; at the end of which the horse had no running, and seemed to be well. He remained in that condition for two months, when the disease appeared again in a slight degree. The animal lived three years in the infirmary, where he served to carry out the bodies for dissection. He died of a consumption, the common consequence of inveterate glanders.

EXPERIMENT XV.

I followed the treatment above mentioned with five other horses, without having the good fortune of

of curing one of them; the particulars therefore do not deserve to be related. I have restored many horses who were thought by some to be glandered, because they had no certain criterion for ascertaining the true glanders; but I readily confess, that I do not believe I ever succeeded, but in one instance, to a complete cure of that disease, although nobody, perhaps, has ever made more attempts to attain it.

On Innoculation, of the glandered Virus into sound Animals, by contact, &c.

ESSAY I.

Two sound horses, the one fresh from grass, aged six years, and the other nine years, just come from work, were placed by a horse who had the glanders, drinking out of the same pail, and eating at the same manger. The first shewed evident

evident signs of the glanders at the expiration of 34 days. It fully declared itself in the second at the end of six weeks.

ESSAY II.

Two horses in good health, the one seven, the other eleven years old, both just taken from work, were placed by a horse who had the glanders. The former caught the disease, and ran at the nostrils, 52 days afterwards; the second, in three months.

ESSAY III.

A horse thirteen years old, very lean, was made to drink the same water out of the same pail with a horse who had the glanders, and continued so to do for two months; but kept from the diseased animal during that time; he did not catch it.

ESSAY IV.

A horse, nine years old, in tolerable condition, placed by a horse who had the glanders in the last stage of the disorder, caught it at the end of 43 days.

ESSAY V.

THREE old horses, destined to the anatomical investigations of the school, having been inoculated with the virus in the neck, did not catch the disease. This experiment was repeated on various horses of all ages, without producing any effect. It was also performed upon an ox, a sheep, and a dog, without impairing in the least the health of those animals.

ESSAY VI.

THE coverings and saddles that had been used to glandered horses, being placed on se-

veral horses in good health for a month, and during the heat of summer, did not convey the distemper.

ESSAY VII.

THE virus, mixed with a little flour, given to three horses for the space of a week, communicated the disease to the youngest at the end of a month. The two others did not sicken till some time after.

By multiplying such experiments only, we shall be able,

1st, To ascertain the degree of infection of the glanders.

2dly, To discover the first symptoms by which it is announced; and which have escaped our notice to this day.

LASTLY,

As we should, by such means, be certain of attacking it in its origin, we might attain to a probable method of cure: for, notwithstanding my failures, I think that a remedy may be found for the glanders. The animal, vegetable, and mineral kingdoms, abound with an infinite number of substances; the combination and rational application of which will, perhaps, in time overcome those obstacles which have hitherto opposed the progress of the veterinary art, in many diseases. Discoveries wait only favourable opportunities to disclose themselves; and the most favourable are those which are furnished by scientific associations, extending their patronage and encouragement for the perfection of the arts.*

* The Board of Agriculture, first planned by Sir John Sinclair, Bart. and now established under the sanction of Parliament, bids fair to be of the greatest national utility in this, as well as in every other branch of improvement and discovery.

I shall here conclude the account of my experiments; and shall only observe, that those I made when professing comparative anatomy at Montpellier have convinced me, that the virus of the glanders has more activity in the south than in the north; that its progress is more rapid in the mule and the ass, than in the horse; but that they are not so subject to receive it by infection or contact.

SHORT OBSERVATIONS

ON THE

CHOLIC, OR GRIPES;

MORE PARTICULARLY THAT KIND TO WHICH RACE-HORSES ARE LIABLE.

THE irritation of the nervous fibres, and the contraction of the capillary vessels, distributed throughout the intestines; and the obstructions produced in those vessels by the stagnation of the blood and humours; occasion the pains in the abdomen which are called the cholic, or gripes.

As

As the causes which produce these ailments are very various, it becomes indispensably necessary to distinguish them, in order to administer the remedy best adapted to each case.

The particular causes of cholic are,

First, crude and acrimonious substances in the stomach or intestines, occasioned by the bad quality of food, or by the weakness of the organs of digestion.

Secondly, an indigestion, arising from too great repletion in the stomach.

Thirdly, the excrements growing dry, and continuing too long in the intestines.

Fourthly, wind confined within the intestines.

Fifthly, cold water given to a horse while in a great heat and sweating.

Sixthly,

Sixthly, different kinds of worms in the stomach and intestines.

Seventhly, the effect of some strange body, as hair-balls, bezoar-stones, &c.

Lastly, an injudicious use of purgative medicines.

All these several causes produce a greater or less degree of inflammation in the abdomen; which discovers itself by different symptoms; some are common to all disorders of the kind, and some are peculiar to its specific species.

A horse seized with a common cholic appears in great agitation; he frets, lies down, and rises again; strikes the ground with his fore feet; and is always shifting his position.

There are, besides, some particular symptoms, which serve to characterize the specific disorder,

and to guide the practitioner in the choice of the medicines he ought to employ to subdue it.

If a horse is attacked with a cholic proceeding from indigestion, soon after feeding upon too much corn, or any other food, besides the general symptoms already described, the breathing will become difficult and laborious, attended with apparent great heaviness; he will groan, and repeatedly stretch out his head and neck.

A cholic proceeding from wind is easily discovered. The horse will be afflicted with great tension of the belly, which is more or less inflated by the rarification of the air contained in the intestines; he will have frequent ventose discharges, attended with restlessness, great pain, and perpetual shiftings.

Cholics which are occasioned by worms are not equally painful; neither is the horse equally disturbed, as by ordinary cholics; yet his appetite fails;

fails; he grows thinner daily; and is continually extending his body, by stretching his fore legs forward, as if he was desirous of bringing his belly to the ground.

The *red cholic* * is the most dangerous of all the kinds to which a horse is liable. It is called by that name on account of the inflammation; which in that case is carried to the extreme degree; and makes so rapid a progress, that mortification takes place in the affected parts of the abdomen within the space of a few hours. The most vigilant attention, therefore, must be given, to distinguish this malady from every other sort of cholic, in order to administer the speediest assistance possible.

A horse seized with this species of the cholic is much more agitated than in any other case of the disorder. He not only lies down repeatedly, immediately rises again, and strikes the ground

* La tranchée rouge.

with his feet; but is continually turning his head towards his flanks and belly; he discovers signs of pain, if either of them is pressed hard; the conjunctive membrane of the eye appears very much inflamed; the sphincter of the anus is in the same condition, and it appears of a bright red.

This great degree of inflammation, which takes place in the red cholic, is always in some degree occasioned by the acrimony of the bile, but particularly by immoderate use of purgatives given too often, and in too large doses.

It is a known fact, that very many medicines of this class act as internal blisters, irritating the nervous fibres of the stomach and intestines; and when they operate with too much activity, they irritate also the extremities of the capillary blood-vessels, cause them to contract, and stop the passage of the blood, by which inflammation is produced. To this must be added the distension of the

the blood-vessels, causing the compression of the nervous system, from whence the great pain under which the animal so much suffers arises.

Such is the effect of violent purgatives; and I will even venture to assert (and to maintain the assertion) *that they are the principal causes of cholics in race-horses.* I shall, on this subject, take the liberty of making a short digression, and observe, That the question is not yet determined, whether purgatives ought or ought not to be at all used in veterinary medicine; that we are entirely ignorant of their relation to the organization of the horse; that experience has hitherto shown, in the different veterinary schools, that there are but very few cases in which these medicines appear to be required; and, that the greatest prudence is at all times necessary in the use of them.

In fact, if we consider the horse either as an herbivorous or granivorous animal, and consider also the simplicity and uniformity of the food by which

which it is sustained, we shall easily apprehend, that it cannot have the same need of artificial evacuations, by means of purgatives, as man, whose intemperence, in every respect, continually opposes and counteracts the direct and uniform process of nature.

What is whimsical enough, it is not the diseased horse only which is purged; but that also which is in perfect health; and this, it seems, with the view of making him lighter and more speedy.

If we were to enquire the cause of this conduct upon the course, I fear the answer given would not be grounded on principles of sound and approved science; and they who were unequal to support the custom by reason, must shelter themselves under the example of their forefathers, from whom they received it to transmit it equally unaccounted for to the use of their posterity.

The

The greater part of those established principles which have obtained in human medicine, have been determined by means of the relation subsisting between patients and their physicians; and by certain effects of remedies taken, and from which such and such sensations had been experienced, of which the patients were able to give an account. But veterinary medicine is entirely destitute of this resource; the patient cannot co-operate with the physician by the means of speech. If he had that faculty, he would probably, when afflicted with the red cholic, express himself thus: You have purged me too violently, and in too large doses; when no necessity existed, you conveyed a fire into my stomach and blood; from whence results the present evil, which marks me the martyr of your ignorance; and while you are drenching me with cordials, under the expectation of giving me relief, you are but encreasing the violence of my tortures. But, to return,

Cholics

Cholics occasioned by drinking cold water, while hot, are the least dangerous; all that seems requisite is to keep the horse well covered, to bleed him, and to administer emollient glysters.

I shall say nothing, in this place, of hepatic cholics; I shall also decline speaking of those which are produced by hair-balls, or any other concretion; because they are incurable. I shall confine myself to the indication of some remedies for cholics to which race-horses are liable; such, namely, as proceed from the effervescence or acrimony of the bile, the use of violent purges, wind, and sometimes worms.

As every sort of cholic is accompanied with inflammation, it is necessary, in the first place, to bleed; which must be repeated according to the violence of the pain, and the degree of fever and inflammation. The horse should then be made to swallow half a pint, or rather better, of oil

of

of castor; and a loosening and softening drink should be made, composed of mallows, marsh-mallows, mullein or cows-lungs wort *(verbascum,)* bears-breech *(acanthus,)* pellitory, lettuce, all-good, or English mercury *(mercurialis,)* and sorrel, a handful of each; the whole boiled together, in six quarts of water, twenty minutes, and this decoction given luke-warm, one quart every two hours. The same decoction is also to be administered in a clyster, to which may be added some cold drawn linseed oil. It is necessary to cleanse the large intestines; because the fœces which lodge there keep up the inflammation in the abdomen.

This method of treatment is proper to be observed in the beginning of every sort of cholic, except that which proceeds from indigestion because it would, in that case, weaken the powers of digestion, and endanger the animal's life. Instead, therefore, of the above prescription, we must give a dose of theriaca, dissolved in a pint

good red wine; or 3 ounces of elixir proprietatis, mixed with the same quantity of geneva, to which add a pint of warm strong beer; after which, the horse should be smartly trotted some time, and in about two hours let him have a gallon of luke-warm water to drink, but no rack or manger meat till an hour after his water. It is to be observed, that old horses are more liable to cholics proceeding from indigestion than young ones.

In windy cholics, give the elixir proprietatis, &c. as above prescribed, or the following drink. Take seed of cummin and anise-seed, of each one ounce and a half; the root of masterwort *(imperatoria,)* and angelica, of each one handful; let them boil eight or ten minutes in three quarts of plain water; divide them into two doses; which give at the interval of one hour; take also a head of garlic, or an onion, and a piece of soap, about the size of an egg, pound them together in a mortar, and add two pinches of pepper; make them into the form of a soft bolus, insert it into

into the rectum as far as you are able, and make the horse walk about for half an hour; after which, administer a clyster, consisting of one ounce of black soap, dissolved in a pint of warm water. If the pain should still continue, and the belly appear more swelled and tender, it will be necessary to draw a little blood.

If the cholic is occasioned by worms, after having employed the general remedies we have described, we must have recourse to the elixir proprietatis, geneva, and strong beer, and the next day to the use of bitters. Accordingly we must prepare a drink, consisting of a decoction of wormwood, fern, lesser centaury, and gentian, and give it in a dose of two quarts a day fasting, to be continued until such time as the animal ejects the worms together with his excrements.

In the red cholic, we should confine ourselves rigidly to relaxing and anodyne remedies; we should therefore give drinks made with emollient plants, as directed page 123, together with linseed,

oil of castor, and emollient clysters. Bleeding may be repeated frequently if necessary, and the English antimonial preparation, *pulvis jacobus* administered every six hours. The horse must be kept warm, and also to a severe regimen; he must be allowed nothing but nitrated water whitened and made pretty good with oat or barley meal.

If, notwithstanding this treatment, the pain should still continue with violence, we may hazard sixteen or twenty grains of opium; although I confess it is with fear that I propose this remedy; because it is not always attended with good effects; and also because it is both very difficult to seize the moment when it should be used, and to proportion the quantity to the actual state of the disorder. If the dose is too weak, the cholic is rendered the more violent; if, on the other hand, it is too strong, it will hasten the animal's death. The veterinary physician alone is competent to judge, from the state of the pulse and other symptoms, of the effects which the use of opium is likely to produce.

If the malady should resist the power of all these remedies, and the following symptoms appear, it generally proves fatal.

The horse remains on his legs as long as he possibly can; he is afraid of lying down; he makes several attempts before he accomplishes it; however, he presently rises again, preferring to stand thus painfully tottering on his feet, rather than subject his whole frame to the agony of a recumbent position. At this period a profuse sweat comes over the whole body; a general tremor takes place; the breathing is quick and interrupted; the nostrils much dilated; the pituitary membrane, and that of the mouth and gums, are of a livid colour; the lips are cold; the yard is sometimes relaxed, and the urine distills drop by drop. In this deplorable state, a mortification takes place, and death is inevitable.

FINIS.

CONTENTS OF THE POSTHUMOUS WORKS.

ERRATA.

A very severe and long illness having prevented the Editor from that close attention he would otherwise have shown to the *literal* correctness of the press, in the posthumous parts of this work, &c. he humbly entreats the indulgent Reader will look over such errors as he may discover on perusal.

Fleet-street, May 1795.

MARTIN and BAIN respectfully inform the Public, that, in pursuance of their plan for printing

THE TRANSLATIONS OF ANCIENT AUTHORS BY THE BRITISH POETS,

They have now published

POPE'S HOMER in 8 Volumes,
GARTH'S OVID in 4 Volumes.

They are now publishing

DRYDEN'S VIRGIL, which will be compleated in 4 Volumes;

And they intend also to print in the same uniform series

DRYDEN'S JUVENAL and PERSEUS,
WEST'S PINDAR, and
ROWE'S LUCAN;

Which will (as well as *the Authors already published)* be

with EMBELLISHMENTS BY THE FIRST ARTISTS.

THE above—besides being separately a valuable Collection—will render more complete, *the first* uniform, most elegant, and compact Edition of THE WORKS OF THE BRITISH POETS printed for *Mr. Bell;* and to which the Translations may, with propriety and convenience, be added and incorporated, they corresponding to the best copies of that justly esteemed Edition. Any possible objection on account of binding can be readily obviated.

THE PUBLISHERS, at their Shop, No. 184, near St. Dunstan's Church, FLEET-STREET, have constantly on sale an extensive Collection of Books, particularly *poetic* and *dramatic:* Amongst which are the following—

BELL'S BRITISH POETS—109 Volumes. *The complete Sets are scarce.*

The single Authors, and particularly those whose Translations already are, or intended to be published, thereby forming their poetical Works complete, to be sold separately when desired.

BELL'S SHAKESPEAR,

Bell's Shakespear, with the Annotations, 20 Volumes.

—— Shakespear's Works, with Dr. Johnson's and other Commentators their Prefaces in 12 Volumes.
The Plays sold separately.

—— British Theatre—*with the Continuation*, No. 91, &c.
The plays sold separately.

—— Fugitive Poetry.

—— British Album.

—— Pantheon, Quarto.

Olivier on Fencing.

Taylor's Stenography, *the best in use;* by which Short-hand Writing is taught without the help of a Master, price 12*s*.

The Gentleman's Pocket Farrier
Ten Minutes Advice for purchasing a Horse } In the compass of an almanack.

Johnson's Poets.

Crashaw's Poems.—*scarce.*

Malone's Shakespear, 11 Volumes.—*scarce.*

Johnson's Dictionary—folio, genuine edition—*scarce.*

The Annual Register—with the Index—*scarce.*

A very fine Copy of Capel's Shakespear, in which many capital Engravings are introduced, price 10 guineas.

Cywydd y Drindod—Poems in the Welsh Language.

Variety of elegant Common-prayer Books.

Sets of the Poets, and of Shakespear, always ready in Variety of Bindings—with Library and Travelling Cases.